The Journal of the
American Medical Association

VOL. XX. CHICAGO, APRIL 8, 1893. No. 14.

ORIGINAL ARTICLES.

ETIOLOGY OF OPHTHALMIA IN THE NEW BORN.

Read at a meeting of the Milwaukee Medical Society, February 14, 1893.

BY H. V. WÜRDEMANN, M.D.,
OF MILWAUKEE, WIS.

Much has been written upon the subject of ophthalmia in new born infants, especially as regards prevention and treatment. To the teachings of Credé,[2] Valude[11] and others may be ascribed the lessened percentage of cases following their methods of prophylaxis. Individual experience on any subject, however well established, is of value, but I will limit my remarks to the etiology of the conjunctivites of infants.

In many children the edges of the eyelids are slightly red for a few days after birth, and there may be a little sticky secretion which disappears under simple means, as washing with lukewarm water and vaseline. This condition should give rise to no uneasiness on the part of the attendant, but of course the case should be watched. Some infants contract acute catarrhal conjunctivitis which differs but little from that in adults, and likewise, in a small proportion of cases, may pass into a sort of follicular conjunctivitis. This is the milder form of ophthalmia which demands our attention in this connection. The other is that to which the term blenorrhœa neonatorum may be properly limited. Some authors[9 3] arbitrarily divide this into two classes; the severe type in which the gonococcus of Neisser[6] is generally found, which has a tendency to increase in severity and invade the cornea, and a milder type in which a bacillus[3] (discovered by Weeks,) is prominent among the other microörganisms, and which tends to recovery. However this may be, in my experience all cases in which there is a purulent discharge seemed alike in nature, and even where gonorrhœal infection was known the cases differed in severity. I think that the majority of cases, if neglected, would tend to ulceration of the cornea, the immunity of the others depending upon the resisting power of the tissues. In all instances various microörganisms are found, and even in confessed cases of gonorrhœal infection the peculiar coccus of Neisser may be absent.[10]

Blenorrhœa neonatorum is one of the most fatal of diseases to the vision. Horner[4] gathered statistics from different countries, finding that the inmates of blind asylums made sightless by this disease varied from 20 per cent. to 79 per cent.

Gentlemen, as you well know, vice and neglect may creep into the residence of the rich as well as into poverty's abode. The infant leaves the warm, dark and comfortable environment of its mother's womb for the cold and cheerless world, is received perhaps into the lap of luxury with modern aseptic precautions of the intelligent practitioner, or is tossed in its filth into a bundle of rags. Or mayhap, if born to parents of the working or middle classes, it may or may not be properly attended by a physician or midwife. Besides as a direct inheritance from its parents, the neglect or opposite extreme of ill-directed zeal on the part of the immediate attendants may cause such diseases as infantile eczema, bronchial or other lung troubles, otitis or ophthalmia.

The causes of the milder forms of conjunctivitis in infants are ascribed, as in adults, to either zymotic or chemical irritants, with the addition of special causes appertaining to the environment of the lying-in chamber or negligence of the attendant, as exposure of the child's eyes to glare of light while washing it, wiping face and eyes with soiled and rough towels, the entrance of meconium or urine, the use of poor soap, etc. The vernix caseosa is the natural protection of the child during birth, being particularly abundant about the creases of the limbs, neck and face. In its journey through the genital passages of the mother it becomes well smeared with her secretions. By ill-directed efforts at cleansing these may be carried into the eyes, and even if not septic may give rise to some irritation. It is the concensus of opinion that nearly all of the severe cases are of gonorrhœal origin, arising from the morbid secretions of the mother. Inoculation with normal natal secretions has not given rise to the disease.[3 10]

All mothers suffering from gonorrhœa do not infect their new born offspring, especially if due precautions have been observed by the attendant. Whatever may be the origin of both forms of the disease, the most frequent subjects are weakly children who are exposed to the debilitating effects of bad air, insufficient clothing, insufficient food; in fact among the poor, also premature infants. But are not the mothers of these children prone to leucorrhœa?[12]

The contagion usually occurs after birth, being commonly due to negligence or ignorance of the nurse in washing the infant, whose face and eyes may be cleansed (?) in the same water as that of the body and dried with the same cloth, the vernix being wiped away and the infecting material wiped in. Where the child is not washed at once, but left in its filth, smeared with lard, goose grease, skunk oil, angleworm oil or what not, the entrance of contagion is even more obvious. I was brought up to believe that *all* cases of ophthalmia in the new born might be ascribed to neglect on the part of the nurse or accoucheur. This is an extreme view, and I now think that infection may take place in the specific form at any time after the rupture of the membranes. Face presentations are particularly liable[10] where the element of contagion is present. Statistics on this point are difficult to obtain in private ophthalmic practice, thus but few notes will be found of the presentation in my account of cases.

The affection may occur the first moment that the child opens its eyes, even before birth in the genital passage or even in the uterus itself, as in a case reported by Nieden[7] of a child born in the membranes where the amniotic fluid was infected. In three of my cases (delivered by physicians noted for the care bestowed upon their accouchements), where the gonorrhœal element was known to exist and where the usual prophylactic precautions were instituted, the infection undoubtedly occurred before birth.

The disease may likewise arise some days or even weeks after birth, from the fingers of the nurse, mother or child, towels, etc., soiled with the maternal secretions. Where the infant occupies the same bed with the mother, soiled bedclothes may be a carrier of the contagion.[4] It must be remembered that gonorrhœa may only be propagated by actual contact of that efficient treatment may be given the child. Of course this disease is more common among the lower classes, who are prone to neglect the disease until too late, or to follow out the cleansing and other treatment in a perfunctory sort of way, unless their minds are sufficiently impressed with the responsibility of the case. Many children are brought to the physician after the cornea has collapsed through ulceration, the case being looked upon by the midwife as a "cold in the eyes," and treated by poultices or other uncleanly applications.

It has been said that a non-specific vaginitis in a perfectly irreproachable individual may produce a typical gonorrhœa in the male. Likewise an ophthalmia may result from leucorrhœa in the mother. However this may be, the gonococcus of Neisser is found[9] in the great majority of cases of malignant ophthal-

SIMPLE CONJUNCTIVITIS.

Number. Name.	Occupation of Male Parent.	Reported Date of Beginning.	Age at First Consultation.	Duration After Consultation.	Attendant at Labor.	Supposed Cause.	Result and Remarks.
1. G . . .	Plumber	3 day	3 days	2 weeks.	Physician.	Negligence in washing.	Health.
2. L . . .	Merchant	2 week	3 weeks	3 "	"	Exposure to light	"
3. D . . .	"	Birth	3 days	1 week	"		" (much vernix).
4. P . . .	Dentist	"	3 "	2 weeks.	"		" " "
5. G . . .	Machinist	2 day	6 "	2 "	"	Negligence in washing.	" (muco-purulent discharge).
6. F . . .	Physician	Birth	1 day	2 "	"	Slight leucorrhœa	2 months later had follicular conjunctivitis.
7. M . . .	Saloon	5 day	7 days	1 week	"	Exposure to light	Health.
8. P . . .	Coal	3 "	5 "	4 weeks.	Midwife.	Negligence in washing.	Twins { Health. / Child died 10th day.
9. P . . .	"	3 "	5 "	"	"	" "	
10. S . . .	Dentist	7 "	16 "	2 weeks.	Physician.	Exposure to light	6 weeks later had follicular conjunctivitis.
11. K . . .	Drug clerk	8 "	10 "	2 "	"	Infection from nurse with dacryocystitis.	Health.
12. H . . .	Clerk	Birth	2 weeks	3 "	"		" (muco-purulent discharge).

BLENORRHŒA NEONATORUM.

1. F . . .	Laborer	4 day	3 weeks. Ulcer R. cornea	4 weeks.	Midwife	"Whites" in mother	Leucoma R. Clear L.
2. C . . .	Railway clerk	2 "	2 weeks. Ulcer both cornæ		Physician.	Gonorrhœa in father	Patient was taken to another physician after I had given an unfavorable prognosis.
3. A . . .	Illegitimate child of a city official	2 "	2 weeks	2 weeks.	"	Leucorrhœa in mother.	Health.
4. H . . .	Laborer	4 "	4 weeks. Ulcer R. cornea	4 "	Midwife	Gonorrhœa in father	Collapse and staphyloma R. Leucoma L.
5. G . . .	Illegitimate child of servant	4 "	4 weeks. Ulcer both cornæ	4 "	"	"Whites" in mother	Leucomata both cornæ.
6. S . . .	Illegitimate child of country girl	2 "	4 days. Ulcer both cornæ		"	Gonorrhœa in mother.	Child died in 3rd week. Collapse of both eyes.
7. W . . .	Laborer	6 "	6 weeks. Ulcer L. cornea	6 weeks.	"	Gonorrhœa in father	Leucoma L. Clear R.
8. C . . .	Laborer	2 "	2 weeks. Ulcer R. cornea	8 "	"	" "	" " "
9. D . . .	Plumber	2 "	4 days	4 "	Physician.	" "	Face presentation; both cornæ clear; child died few weeks later of pneumonia.
10. B . . .	Laborer	2 "	5 weeks. Ulcer both cornæ	7 "	Midwife	" "	Leucoma R. Collapse L.
11. K . . .	Illegitimate child of newly arrived emigrant	2 "	4 days		"	" "	Seen but once.
12. Hospital case.	Illegitimate child of "kept" woman	Birth	4 "		Physician.	"Whites" in mother	L. O. A. Presentation. Child died in 3rd week. Collapse of both eyes.
13. Hospital case.		1 week	8 "	2 weeks.	"	Contagion carried by nurse from No. 12	Health.

the virus in a fresh state with a mucous membrane. Yet round-about methods of infection are known, as house flies[4] being the carriers from one infant or from soiled clothes to another's eye. The picture of a sick infant with its face covered with flies is common in the hovels of the South in hot weather. In hospitals, the attendants, be they ever so careful, may infect other children. Thus special nurses should be retained and the cases isolated. The virus seems attenuated by being carried from one child to another, the resulting cases being lighter as a rule.

The original factor in this disease is the father's lapse of virtue by which he acquired a specific urethritis. With him it is advisable to speak plainly, to handle the subject with bare hands, to make him acquainted with the results of his iniquity, in order to inspire in his mind sufficient interest in the case mia. The origin of some of these might perhaps be traced as in the following, which is vouched for by a friend of mine as occurring in his practice:

The father had been apparently cured of gonorrhœa six months before marriage, and the child was born after over a year of married life, he himself remaining free from urethritis and his wife being apparently well. The child developed a severe case of ophthalmia neonatorum which ran the usual course. When the child was nearly well the father applied to the same physician with acute urethritis, denying *in toto* all exposure. The man had probably never been cured of his first gonorrhœa. This brings up the question of the viability of the gonococcus and its retention for indefinite periods within the vaginal folds of the mother without the production of an appreciable amount of vaginitis. This may be so,

as some women are apparently immune to the ravages of the gonococcus. Note some women of the town who are apparently free from gonorrhœa, and yet who occasionally infect some of their visitors, while the majority escape.

I append an abstract of twenty-five recent cases of conjunctivitis in new born infants seen in private practice, from which some of my statements have been deduced, others being duly authenticated.

The small number of cases of catarrhal conjunctivitis in proportion to those of the graver disease may be remarked, as the lighter form is of common occurrence, while the blenorrhœa is relatively rare. This may be explained by the fact that most of the latter ultimately apply to the specialist for treatment, while the lighter forms being readily subdued by the attendant or by household remedies, or getting well without treatment, do not usually call in a physician for the eye affection. In eleven of the cases of infantile catarrhal conjunctivitis the labor was attended by a physician, and in the other by a midwife. All of these cases were seen by wish of the medical attendant. The cause of three cases was believed to be due to the exposure of the child's eyes to light; one to infection from a nurse who had dacryocystitis; five to carelessness of the nurse in washing child, etc.; in one the mother had a mild leucorrhœa, and in the other three no cause could be ascribed. Two of these cases were muco-purulent, and two others suffered later from follicular conjunctivitis. In all the catarrhal symptoms yielded to treatment within a few days and at no time presented any corneal complication. All of these cases were in the better class of patients.

It will be noticed that the majority of the cases of blenorrhœa neonatorum occurred in children whose parents were of the lower walks of life. Five of these children were illegitimate. In seven cases the father acknowledged having gonorrhœa within several months before the child's birth, and in one case the mother. In four the mother said she had "whites," and as three of these children were illegitimate, gonorrhœa was possible. In the thirteenth case the contagion was propably carried by the nurse who was attending No. 12 in a neighboring bed. The majority of these were delivered by midwives, presumably without proper precautions. In three of the cases (Nos. 3, 9, 12) delivered by physicians, prophylactic measures *a la Credè* did not afford immunity. Two of the children died of marasmus after loss of both eyes. One of the others was so depleted by the long course of suppuration that it succumbed to pneumonia within a few days of the commencement. Ulceration occurred in fourteen eyes, of which the vision in nine was subsequently lost. The majority of the cases of blenorrhœa applied for treatment after ulceration of the cornea had set in, and when the parents had lost faith in the ability of the midwife to handle the affection.

805 Grand Ave.

REFERENCES.

1 Chibret, "Pathogeny of Affections of the Conjunctiva in a Bacteriological Point of View," Cong. franc. d'Ophthal., May, 1891.
2 Credè, "Die Verhütung der Augenenzundung der Neugeboren," Arch. für Gynakol., xvii.
3 De Schweinitz, "Diseases of the Eye," 1892.
4 Fuchs, "Augenheilkunde," 1889.
5 Horner, "Krankheiten des Auges im Kindesalter," Hdbh. d. Kinderkrankheiten," 1879.
6 Neisser, Centralbl. f. Med. Wissensch., xxviii, 1879.
7 Nelden, "On a Case of Blenorrhœic Conjunctivitis in a Child born in the Membranes," Zehender's Monatsbl., xxix.
8 Noyes, "Diseases of the Eye," 1890.
9 Panas, in discussion of Ref. 1.
10 Schmidt-Rimpler, "Augenheilkunde," 1889.
11 Valude, Ann. d'oculist, cvi.
12 Walton, "Diseases of the Eye," 1875.

RUSH MEDICAL COLLEGE

The fiftieth annual commencement of Rush Medical College was ushered in this year by unusual ceremonies. The corner-stone of the new Biological Department was laid by the trustees and the faculty, addresses being made by Professors Holmes, Hamilton and Miller. After the addresses, Prof. Nicholas Senn held a clinic from 10 to 12. At 2 P.M. the usual exercises were held at the Academy of Music.

Prof. Hamilton's address is as follows:

THE CORNER-STONE OF THE NEW BIOLOGICAL DEPARTMENT OF RUSH MEDICAL COLLEGE.

BY JOHN B. HAMILTON, M.D., LL.D.

Mr. President of the University, Professors and Alumni of Rush Medical College:—To-day marks an event which we trust may begin a new era in the history of Rush Medical College.

We here with simple ceremony, in the presence of those interested, lay a corner-stone. On that corner-stone we propose to erect a superstructure and dedicate it to the welfare of mankind.

This is the age of realism. The age of symbolism has gone. You will, therefore, see in that superstructure that is to be, no rich entablature, ornate columns, nor peristyle. You will not see the statue of Æsculapius with the Apollonian rod in one hand, the fir cone in the other, nor the image of the goat that nourished him in infancy, nor that of the faithful dog that guarded his juvenile slumber; nor the cock the emblem of early vigilance, nor the statue of Prosperity, nor that of Dreams.

These in past ages were indeed the mute but ornamental occupants of the Æsculapian temples. Our students do not need the visible emblems of sentiment to urge them. We simply appeal to their love of truth. Truth for itself, and truth for the benefit of the human race.

In the enlargement of the teaching facilities of this college, Mr. President, the faculty have undertaken the work unaided. They will not be unrewarded for their sacrifices, if they succeed in giving the students such improved means for the prosecution of their studies as may the better equip them for the combat with disease, and the relief of human suffering.

But they have even higher hopes. They hope to stimulate in their pupils a further research into the vast area of the unknown. The faculty do not intend or wish to have a monopoly of the medical knowledge to be stored here. They wish this new laboratory to become a treasury, wherein scientific knowledge may be collected, and from whence it may be distributed.

To that end we establish this biological department of Rush Medical College. We shall here have improved facilities for the study of anatomy, the experimentation of physiology, practical demonstration in normal and pathological histology, and the recent addition to medical science, bacteriology.

Some discoveries in medical science have made epochs in medical history. We are now in the second decade of the great epoch inaugurated by Pasteur's immortal discoveries. No truth in medicine, since the discovery of the circulation of the

blood, has been so far reaching as that of the existence of pathogenic organisms. It has caused a radical change in our doctrines of the causation of a large class of diseases. It has revolutionized the practice of surgery. It has made new operations possible, and has saved thousands of lives. It has reëstablished the practice of quarantine on a scientific basis. It has wonderfully stimulated the study of hygiene in all its departments, and destroyed the fear of epidemics, provided only that scope be given for the free practice of the preventive measures demonstrated to be necessary.

Biological study is not only one of the highest practical utility, but it has beauty and boundless interest. When the student begins to study cell formation, the geometric arrangement, and the wonderfully beautiful colorings and kaliedoscopic chemical changes sometimes developed under his vision, he soon feels with the poet that

> "The meanest floweret of the vale,
> The simplest note that swells the gale,
> The common sun, the air, the skies,
> To him are opening paradise."

With the construction of the biological department we shall be enabled to relieve, to a certain extent, the overcrowded building now occupied, and for some years at least, we shall be able to keep abreast of the more favored institutions.

It is not asserted that we have yet reached our ideal—far from it. There is no endowment for the chair of the new director, nor indeed for a single chair in the institution, and the interior equipment of the new laboratory might well be the object of large expenditures.

Chicago, although enterprising and generous, is still young Her industrious citizens have had so many worthy objects of their attention that the needs of this college have escaped their notice. Boston, New York, Philadelphia, Baltimore, San Francisco, and even Cleveland have been more fortunate, for in each of these places gentlemen have come to the front to place their medical colleges in the first rank.

The ability of Brainard, the brilliancy of Gunn, the Herculean labors of Parkes and their colleagues, have made the past of Rush Medical College a glorious memory.

Notwithstanding the adage, that "an acre of performance is worth the whole land of promise," we may fairly express the hope that the new department, the genius of Senn, the devotion of the faculty, and mayhap the wisdom of some as yet undiscovered local philanthropist, may give the school an even more glorious future. A school to which will cling lasting and pleasant memories of days well spent, and one which the alumnus of the future may, with true filial devotion, seek to revisit at each annual reunion.

THE ATMOSPHERIC TRACTOR IN OBSTETRICS.

Read before the Iowa Union Medical Society at Cedar Rapids, June 14, 1892.

BY T. J. SHUELL, M.D.,
OF FARNELL, IA.

There was a time, not many decades ago, when the regular profession was probably too conservative. There was a time when anything new whether in therapeutics or surgical appliances, was looked upon as savoring of quackery. But I believe that now we have reached the opposite oscillation of the pendulum, and that we are too prone to give credence to the claims of every new drug, and to try every new appliance, surgical, obstetrical or gynecological. Leading drug houses have enriched themselves by reason of our credulity; leading instrument makers have amassed shekels upon the "fads" termed "the recent inventions in surgical appliances."

When put into the crucible of clinical experience some of the drugs put forward in the last quarter of a century have come to stay, whilst the great majority have fallen into deserved desuetude. Some surgical, obstetrical and gynecological instruments and appliances founded upon strict anatomical knowledge, and in accordance with the physical laws of Nature have been welcomed by the profession, while the majority live only by their number in the patent office.

As one of the inventions of late years destined to stay and to assist nature during the throes of childbirth, and thus prevent pathological conditions too frequently a sequel of parturition, I regard the atmospheric tractor. As this instrument has not been upon the market much longer than a year, it is possible that some of you may not have seen it. This instrument consists of a rubber disc intended for application to the presenting part of the child, and maintains its hold on the principle of atmospheric pressure.

We all remember that lesson taught us in our early readers, "How a fly walks on the ceiling." In that we learned that the pressure of our atmosphere, or air, is about fifteen pounds to the square inch. This pressure is equally in all directions. If through any means we can exhaust the air from any definite area, the outside air will press in the proportion of fifteen pounds to the square inch to fill the vacuüm thus formed. This is the principle observed every day in our syringes and in our aspirators. This is the principle referred to above by the fly walking on the ceiling. This is the principle illustrated by various cephalopods and cuttle fishes clinging to the rocks and seizing upon their prey.

Over forty years ago, Sir John Y. Simpson referred to this principle and believed it could be made of practical use in obstetrics. He employed it successfully, though in a rude form, using a metallic speculum fitted with a piston.

The instrument I will show you to-day has five square inches of surface. If we could create a perfect vacuüm the traction force of this instrument would be seventy-five pounds. But such a result is impossible, even with our finest air pumps. Taking in view these difficulties in apposition and exhaustion, we may safely say that the atmospheric tractor will exert a force equal to half of seventy-five pounds.

Such a force is amply sufficient to deliver any child, unless the head be abnormally large, the maternal passages unnaturally narrowed, or the bones of the pelvis distorted. But our obstetric forceps will fail in these cases. Because when we use the forceps we add, at the least estimate, about one-fourth of an inch to the width of the head, and the dreaded options are given us of craniotomy or Cæsarean section.

I will not claim for the atmospheric tractor that it will effect delivery in every case in which the for-

ceps will deliver; because I believe there are cases in which the compressive power of the forceps will more than counterbalance the additional width that they add to the head. I do, however, believe that the atmospheric tractor will in the future, be *the* instrument to accelerate labors in that great class that are found between easy labors and dystocia.

I believe that I am no exception to the average class of physicians when I say that I dread the so-called "dry labors:" that I dread high forceps delivery; that I am reluctant to insist upon the use of forceps against the expressed opposition of relatives; that I am sometimes fearful that they may produce rupture of the perineum in primiparæ. How often do we see in our medical journals the statements of reputable physicians to the effect that they had attended a thousand or more cases of labor, and never had to resort to the forceps, and who tell you that labor is a physiological process, and advise you "to let nature alone."

On the other hand how often do we meet physicians who want to use the forceps in every second or third case in order to hurry up things and "show off!" Between these extremes we should draw the golden mean.

The majority of our best obstetricians nowadays, use the forceps twenty to fifty times in every 1,000 deliveries; and are candid enough to admit that there is an immediate or remote danger to mother or child in every case in which they are used.

I don't believe in the indiscriminate use of the forceps—it has contributed as much as any other cause to the specialty of the gynecologist. I don't believe in the "do nothing" plan; because I know that we can assist in parturient cases without doing injury to mother or child. I don't believe in heroic doses of ergot in the first and second stages of labor; nor in pushing chloroform to somnolency, or to a very opposite effect—wild intoxication.

Yet, I do believe in assisting labor. I believe that every second or third case of labor needs assistance, and I believe that such assistance can be given, without injury to mother or child, by the use of the atmospheric tractor.

I have used the atmospheric tractor for about a year, and have employed it in about twenty cases. It will do away with the tedious waiting of "dry labors"; it can be applied at the superior strait very readily when the first stage has been completed, and thus obviate the necessity of high forceps delivery.

It will revive the pains when they have grown feeble or altogether disappeared. It will prevent rupture of the perineum by assisting in enucleating the head during the interval between the pains. It does not act on the principle of an adhesive plaster applied to the scalp; the vacuüm formed by the resiliency of the rubber, and by traction, holds it in close apposition to the bones of the cranium. Strange as it may appear its application, even without traction, will cause the head to descend. This point was illustrated in several of my cases; the head descending rapidly upon the application of the tractor without traction. I can explain it only on the principle that the atmospheric pressure was relieved from a part of the head, and the partial vacuüm thus formed caused the head to move in the direction of the tractor.

The tractor can be used in breach presentations as well as in head presentations; I made a trial of it in two such cases where it materially assisted. It can do no harm. It will not mark the child; it will not tear off the scalp; it will not suck out the child's brains.

Strict antiseptic precautions may be used with it as well as with any other surgical instrument. The only difficulty I have ever experienced was in its application; the traction force, if care be taken to secure apposition at the beginning of a pain and traction during the rest of the pain, was all that I could desire. Where the external passages are narrowed (as in the case of primipara), or where the os is only partially dilated, it is difficult of application. Care must be taken not to attach it to the anterior lip of the uterus during incomplete dilatation.

By doubling the disc between the forefinger and thumb these difficulties may be overcome.

There are two patents of this instrument by a physician in Philadelphia; in one, apposition is maintained by the resiliency of the rubber; in the other, by an exhaustive air pump. I prefer the former. There is still probably considerable room for improvement. The only object in presenting this paper is the good of humanity and of the medical profession at large, and to maintain that the principle of the atmospheric tractor is in accordance with the physical laws of Nature.

TWO CASES OF STERILITY AND IMPOTENCE FOLLOWING THE LEFT LATERAL OPERATION FOR STONE.

BY ORVILLE HORWITZ, B.S., M.D.,
Clinical Professor of Genito-Urinary Surgery and Venereal Diseases in the Jefferson Medical College, Surgeon to the Philadelphia Hospital, etc.

Two cases of impotence and sterility coming under the care of the writer were produced by the performance of the left lateral operation for stone, and it is presumed that their histories would not be uninteresting to the profession, and possibly prove an additional reason for resorting by preference to the super pubic operation.

Case 1—G. L., clerk, age 29. Married. First seen November, 1891. States that he was in perfect health as far as his sexual functions were concerned, up to the spring of 1890, when suffering from stone in the bladder, he was operated upon by one of the prominent surgeons of the city, who performed on him the lateral operation for lithotomy.

He states that the stone was very large and that it required a good deal of force and trouble to remove it. After the operation he remained an invalid for the space of six weeks; a fistulous opening remaining, which continued for three months, discharging a few drops of urine, whenever he was called upon to micturate. The opening finally closed without surgical aid.

After he had become convalescent he found that his virile powers were much impaired. His erections were weak and flabby; frequently subsiding before intro-emission, and when he succeeded in having an erection sufficiently vigorous to permit the sexual act, no emission followed. His desire for sexual intercourse was unimpaired. As time went on his erections became more and more feeble, until, at the time of his first visit to the writer he had altogether lost sexual power; although desire was still strong, he had not made an attempt at cohabitation, nor had

he had a nocturnal emission for the previous six months.

The penis and testicles were normal, the wound in the perineum was closed, and not in the slightest degree sensitive. On examining the urethra, by means of an endoscope, the cicatricial tissue resulting from the operation was found to extend from the membranes to about half the length of the prostatic portion of the canal; there was a great deal of congestion as with marked hyperæsthesia. The bulbous explorer brought away some mucous. The urine contained some casts of the prostatic sinuses. The normal calibre of the urethra was 33 F; the meatus, 26 F.

The treatment consisted in enlarging the meatus up to the full calibre of the canal, and beginning with a number 26 F bougie, passing it every third day, and gradually increasing it as the pain and congestion of the deep urethra diminished until it reached 35 F. It is believed that to permanently cure hyperæsthesia the urethra must be over distended. The patient was likewise instructed to use hot baths; to pay great attention to the regulation of his bowels, and to take sixty grains of the bromide of potassium at bed time for the space of three weeks.

At the end of four months the congestion of hyperæsthesia had disappeared, and the individual began to have healthy, vigorous erections in the morning. He was placed upon the use of chloride of gold and soda, together with strychnia in doses of a twentieth of a grain each, to be taken after meals. Cold local baths were now used, and the constant current passed for twenty minutes daily extending from the lumbar portions of the spine through the penis, testicles, and perineum. In addition, exercise daily was directed for an hour at the gymnasium.

Under this treatment, continued for six months, an entire cure of the impotence was effected, but a condition of aspermatism has remained. When the orgasm takes place, there is a slight discharge from the urethra, of mucous with prostatic secretion which contains nosemen.

He was warned to be careful with regard to sexual excess, and informed that he would always remain sterile.

The second case was that of a young man twenty-six years old; unmarried, who had enjoyed perfect health up to three years previous to his first visit to the writer.

He had been treated for the space of two years for what his physician called cystitis; when he was examined by a physician who detected a stone in the bladder, which was removed by the left lateral operation. When he regained his health some four weeks after the operation, he discovered that his sexual power, which was normal before the operation, had become very feeble; the erections were infrequent, flabby and transitory. He had had no emission since the operation. The erections became more and more feeble, and farther and farther apart as time progressed.

It was a year after the operation that he paid the first visit to the writer, at which time he had not only lost all power of erection, but his sexual desire had entirely ceased. His condition so affected his mind that he was in a most distressing hypochondriacal condition. There was marked neuræsthenia. He was pale, thin, with a coated tongue, constipated bowels, cold, clammy skin, especially effecting the hands and the feet. His expression was careworn, anxious and gloomy, with hebitude. He was unable to apply his mind to anything requiring serious thought, and did not for a moment forget his trouble. Local examination showed pretty much the condition described in the first case.

The treatment was the same as that observed in the first case, and every effort was made to arouse and interest the patient, without avail.

After three weeks he left the care of the writer and placed himself under the care of other practitioners. He became the prey of numerous quacks, and when last heard from was in seclusion in a private asylum.

As this was a form of impotence which is classed under the head of the variety of the paralytic form, where both power and desire are lost, and which is frequently associated with hyperchondriasis, an unfavorable prognoses was given to the friends of the unfortunate individual; especially was it adverse, as the aspermatism was due to injury, a condition beyond our aid.

In both these cases the individuals were sexually strong and vigorous prior to the performance of the lateral operations, and became sterile and impotent only after they had submitted to the surgeon's knife. Is this not a good reason for advocating the high operation whenever practicable?

SURGICAL THERAPY OF RECTAL CANCER.

BY THOMAS H. MANLEY, M.D.,
OF NEW YORK.

The comparative values of the different operations for rectal cancer—tentative and radical—may be gathered from the published records of various surgeons.

In the London Hospital, from 1872 to 1880, thirteen colotomies for cancer were performed, with nine deaths. During the same time, says Cripps,[1] twenty-six such operations were performed at Guy's Hospital, with eleven deaths—a mortality of about 42 per cent. It does not appear whether this was an operative mortality, or whether those were simply classified under "mortality" who died before leaving the hospital. Allingham gives twenty-seven colotomies, with a mortality of 11 per cent.

Cripps says of colotomy, that in some it affords relief from pain, while in others it has failed to do any good. Of course, in *complete* intestinal obstruction, a colotomy *must* be done.

Of later years, in France, Pinault, Velpeau, Récamier, Massé, Chassaignac, Maisonneuve, and in Germany Freinonze, Nussbaum and Schuh, revived the operation of rectal resection for cancer; and in England Paget, Jordan, Holt, Allingham, Gray and Holmes gave it their support.

In Cripps' Jacksonian essay on thirty-six recorded cases of extirpation, per rectum defecation became normal in twenty-three, could not be retained when fluid in six, and incontinence continued in only seven.

In all cases it appears that incontinence is the rule immediately after operation, but as the wound heals, control is regained. Retention of the fæces, however, *is possible* in many instances even after the entire sphincter has been cut away.

In another table of Cripps', we find of sixty-six

[1] Cripps on Rectal Cancer, Ed. 1, p. 212.

recorded cases of extirpation, forty-four recovered and eleven died—a mortality of 17 per cent.

Préchaud's tables,[2] made up from his own cases and the records of several other operators, give 149 observations on rectal cancer extirpations, of which there were 103 operative cures (69.13 per cent.). Immediate relapse in 3; doubtful result in 7; operative deaths in 36; 69 relapsed after one year; 15 relapsed after two years; 2 relapsed after three years; 5 relapsed after four years; 5 relapsed after five years.

Hence, from the above, we must assume that, five years after operation, none but six could be accounted for—or about 4 per cent. of all.

Charron gives us a table of results in 139 cases of colotomy.[3] Of these 8 were missing and could not be accounted for; 54 died within two months; 65 lived from two months to one year; 5 lived from twelve months to eighteen months; 3 lived from one year to two years; 6 lived two years or more.

It would appear from the above table that, in the results as far as prolongation of life is concerned, there is little difference ultimately.

It does not appear from these tables whether those who died succumbed through a *local* recurrence of the malady, or as the result of a generalization, or metastasis.

It is a matter of common observation that when local, superficial epithelial growths are completely swept away by caustics or the knife, the disease most commonly recurs *rather in the internal viscera* than at its original site.

The question, then, to determine, in a given case of cancer, is *not* what operation will eradicate the malady?" for *that* is clearly quite out of the question, but rather, "which will afford a temporary cure, and give the patient the greatest amount of *mental quiet* and bodily comfort; so that when the end comes, it may be painless;" as we know is commonly the case when death is due to cancer of the internal organs.

On the main points which the question involves, modern surgery has made possible a quite general accord of opinion among operators.

302 W. Fifty-third St.

TRICHLORACETIC ACID; AS A TEST FOR ALBUMIN; AS A CAUSTIC; AND AS AN ASTRINGENT.

BY Q. C. SMITH, M.D.,
OF AUSTIN, TEX.

As bed-side tests for albumin in the urine, the test-papers put on the market by manufacturing pharmaceutists leave little to be desired, as to convenience. But for office use, the most convenient reagent we have used for the quick, certain and ready test for albumin in the urine, is trichloracetic acid.

Place two to four drachms of suspected urine—filtered, if necessary—in a small graduate glass, drop into the urine one or two small crystals of the acid, gently stir the urine with a small glass rod, aluminum probe or clean splinter of wood; and if albumin be present in appreciable proportion, it will quickly settle at the bottom of the glass, as a white flocculent deposit.

The proportion of albumin can thus be quickly estimated, per volume, by reading the graduate marks, sufficiently accurate for ordinary purposes, consuming only a very few minutes, little trouble or expense, or skill.

As a *caustic*, trichloracetic acid is a valuable, convenient and easily manageable remedy.

Wipe the affected part *dry;* dip the tip of an aluminum, gold or wooden probe—*naked* if the affected surface be *small*—in a saturated solution of the acid, and touch the parts with the charged tip, and soon as the medicated surface begins to turn *white*, again wipe the part dry—if indeed it is not already dry, as it often is, from the effect of the medication. The saturated solution of trichloracetic acid is not so diffusible as nitric or chromic acid, and therefore more easily manageable, and its application is much less painful than other chemical caustics, or the thermo-cautery. It is well suited for killing naso-pharyngeal and other neoplastic and fungous growths and hypertrophies; as those of the vagina, uterine cervix, venereal warts, pile tumors and polypous growths.

And when *well diluted*—according to the purpose for which it is to be used—it is a most valuable *astringent* to apply to suppurating sinuses and surfaces, and for injections in the latter stages of gonorrhœa, in male or female. Before applying the acid, as a *caustic*, to very sensitive parts, it is well to cocainize the part for a few minutes before the acid is applied.

I have been using trichloracetic acid for the purposes mentioned for about two years, and find it a very convenient and effective remedy.

617 Colorado St.

[2] Préchaud's "Cancer du Rectum," p. 126.
[3] Charron, "Maladies du Rectum," p. 112.

SOCIETY PROCEEDINGS.

The Medico-Legal Society of Chicago.

Regular Meeting, March 4, 1893.

DR. DANIEL R. BROWER, VICE-PRESIDENT, IN THE CHAIR.

Harold N. Moyer, M.D., read a paper on

REASONABLE DOUBT AND PREPONDERANCE OF EVIDENCE IN MEDICAL JURISPRUDENCE.

Theoretically the medical jurist is not concerned with legal interpretations or distinctions. He is expected to ascertain facts, to weigh them and to present a well considered opinion for the guidance of the court and jury. His sole necessary qualification for this office would seem to be a thorough knowledge of the elementary medical sciences and complete acquaintance with the special subject regarding which he is expected to give testimony. While these qualifications will ever remain paramount, we hope to show in the course of this paper how important it is for the medical jurist to comprehend and apply some of the elementary rules regarding the weight of evidence.

The medical witness bases his opinion upon facts, but these facts are not necessarily of equal importance. For instance, a patient may present himself to the physician with the statement that he has lost flesh, that he has a cough, and night sweats. If on examination loss of motion over the upper portion of one lung is found, together with bronchial breathing, and if in addition an examination of the sputum shows the presence of the peculiar bacillus, a diagnosis of tuberculosis of the lungs may be made with absolute certainty.

The diagnosis in such case would, if the above case was a matter of contention in a court of law, become the opinion,

and the symptoms would be the facts on which it was based. It is apparent that the symptoms present an increasing definiteness, from the loss of flesh, night sweats, cough, loss of expansion, bronchial breathing and presence of the bacillus, and they have a corresponding value in formulating the opinion or diagnosis. If we begin at the most positive end of our series, and strike out in successive order first the bacillus, then the bronchial breathing and loss of motion, we have reached a point in which the opinion becomes doubtful, and where differences may naturally arise. It is precisely in these doubtful cases that the opinions of medical men are sought. Where the facts are such as to make out a *prima facie* case, the medical testimony is usually perfunctory.

Still adhering to our hypothetical case, would it be possible for one to state on the three symptoms, night sweats, loss of flesh and cough, that a person has consumption? We think in the audience before us there are some who would be willing to give that opinion, and we believe it would not be necessary to go far to find those who would say that a patient presenting those symptoms might have empyema, or abscess of the liver. Such differences of opinion rest therefore on a ranging estimate as to the relative importance of these different facts.

It is precisely such facts, based, of course, on the testimony of others, that juries are called upon to weigh, and they are furnished with certain rules or guides to measure the evidence. The most important of these instructions relate in criminal cases to reasonable doubt; the jury is told to acquit if, on consideration of all the testimony, it is sufficient to raise a reasonable doubt of the guilt of the accused. The measure of this doubt is usually and best stated that it should be of such a character as to satisfy one to such an extent that he would act upon it in his own most important affairs. It is not every violent presumption, or strained statement, that is to be tortured into a reasonable doubt, but such facts as would cause one to hesitate in the presence of some important undertaking, or divert one from certain purposes in the ordinary activities of daily life.

In civil cases the rule is quite different. There the jury are to decide on the preponderance of evidence. It takes much less proof to hold a corporation for negligence in killing a man than it does to convict a person of murder. Unfortunately, we have no such clear definition of preponderance of evidence as we have of reasonable doubt. Instructions on this point are generally given somewhat with reference to the circumstances of the particular case. The jury are not to be guided by the number of witnesses but the general circumstances, their credibility, evident freedom from bias and other factors. Bearing these matters clearly in mind, they are to decide in favor of that side which presents the strongest probability. These distinctions in civil and criminal jurisprudence are just and proper, and are the outgrowth of the highest judicial experience. It matters not that they are misapplied or wholly misapprehended by many juries, they must ever remain the very foundation stones of the philosophy of the law.

We may now pass to a consideration of the bearing of these tests upon the practice of forensic medicine. In so far as a physician testifies to facts he is in the same position as an ordinary witness, but by reason of his special training and knowledge he is permitted to testify as an expert and to give his opinions.

Theoretically the law says that every portion of a case must be tried in court and passed upon by a jury. Practically a certain part of some cases are tried outside of the court room. Physicians or others with expert knowledge are allowed to give opinions based upon facts which may never or perhaps cannot be brought into court. It is but a barren fiction of the law that every such opinion shall be accompanied by a recital of the facts upon which it is based, so that the jury may pass upon its correctness. The fact that an expert is called admits at once that the person having but ordinary knowledge is incompetent to judge of the facts at issue. Of course, cross-examination brings out the facts, and furnishes the opposite side with material with which to rebut or argue as to the correctness of the opinion. The fact remains, however, that about the only thing the jury take with them to their room is the naked opinion. The result is that experts called by one side are offset by a like number summoned for the other side, and this often when there is no real difference of opinion between them. That the real basis of opinion, testimony, cannot always be presented in court, is sometimes admitted by our higher courts. A curious point as to the proper admission of testimony was presented on the appeal of a case where the action was for slander in charging an unmarried woman with unchastity. The defendant in answer alleged that there was such an increase in size and such a change in the physical appearance of the plaintiff as to induce him to believe that she was pregnant. One of the witnesses on his behalf was a woman who had borne children, and who was asked if the plaintiff appeared like women do when they are pregnant. This question was not allowed, and the appeal from the ruling was the main point to be decided. The court held that it was proper to ask a witness his opinion whether a person was drunk, because that fact is better determined by the direct answer of the witness than by any description of the person's conduct, and that there was a similarity between such a case and that where the fact of pregnancy was involved. The court was of the opinion that "if the appearance of the plaintiff, from any cause, was such that women who had had experience would testify that she appeared like a pregnant woman physically, the testimony certainly was important to mitigate the damages to which the defendant might be subjected. And if the plaintiff insists that the witnesses should have stated the facts in detail, in order that the jury might judge whether plaintiff's appearance was like that of a pregnant woman, it is obvious that no description of enlargement of size and the like would convey an accurate idea of the plaintiff's whole appearance. It was therefore decided that it was proper to ask the opinion of the witness whether the appearance of the plaintiff was like that of a pregnant woman.

The possible widening range of opinion testimony is shown in the above decision, which clearly recognizes that many conclusions can be arrived at so complex in their nature that it is practically impossible to give the facts upon which they are based. Particularly will this be true in forensic medicine, where general conditions have so frequently to be stated. Who can give the basis of an opinion that a person was suffering from shock, that cachexia or other diathetic condition was present? The elements of these opinions are based in the entire physical condition of the patient.

These examples are sufficient to show that a certain portion of some cases may be decided outside of the court room, though theoretically such ought never to be the case. Take for example the cause of death as assigned at a post-mortem examination. In those cases where vital parts are injured, or death follows in direct causal relation to the injuries, there can be little question, but where death follows from the remote or secondary consequences, or where grave organic disease is found associated with certain injuries, then we have room for differences of opinion, and it is imperative that we should rigidly apply the legal rules for weighing evidence. During my service as county physician a man was placed upon trial for the murder of a woman over eighty years of age. The evidence went to show that they

had had an altercation, and that he had pushed or struck her and that she had fallen to the sidewalk. From this time on she gradually failed, complained of severe pains in back, and finally said that the nervous shock and injuries received at the time of the assault were the cause of her trouble. About three weeks from the date of the alleged assault she died. At the post-mortem examination the urinary tract was filled with pus, concentric hypertrophy of the bladder was found, both kidneys were simply large abscesses. The condition was such as to show that the predisposing causes of this state of affairs had existed for months or years. To the question as to whether the assault such as described might or would be likely to hasten the death of the individual, it was answered that they would. On cross-examination it was admitted that the old lady might have died precisely as she did had she not received the fall. The accused was acquitted. Another case was that of a man who had been assaulted; in fact there had been a free neighborhood fight in which he took part. He received several blows about the head, one of them causing a slight cut at the lower border of the left orbit. Subsequently erysipelas set in and the man died from blood-poisoning. The erysipelas was probably occasioned by improper dressing and careless management of what was a trivial wound; at the same time it might have been one of those spontaneous cases to which the external wound bore no relation. In this case the accused was acquitted because the writer would not state that death was to be attributed solely to the injuries.

In the foregoing cases the contention was as to the cause of death, which is one of the most important elements in a charge of murder. The question did the wound or injuries cause the death of the person, is one calling for an opinion. It matters not that the elements upon which the opinion is based may be called for, it is possible that they cannot be given, in any event the opinion passes to the jury and may be used by them as a part of their judgement of the case. It seems to us, therefore, that every physician ought to understand and apply the elementary rules of legal evidence. In stating the cause of death which may be part of the corpus delecti in a charge of murder he should be convinced beyond a reasonable doubt that the injuries inflicted caused the death of the person, while in deciding the same question in a civil case he would be governed in his opinion by a simple preponderance of the evidence.

An illustration of variance in opinion that may arise from an improper application of these tests occurred in the writers experience. An accident insurance company recently submitted a case in which a demand had been made on them for a life indemity. The deceased some weeks before his death received a fall, striking on the side of his head, subsequently symptoms of cerebral pressure developed and he died. Post-mortem examination showed that death was due to a cerebral abscess. The opinion was given from all the facts that the abscess and hence the death was *probably* caused by the fall which he received some weeks before.

The same facts were subsequently submitted to a very competent pathologist who held to just the opposite opinion, maintaining that the insurance company was not liable. In a subsequent conversation with this gentleman he said that his opinion was given in favor of the non-liability of the insurance company because, under like circumstances, he would not be justified in attributing the cause of death to such an injury in cases involving a charge of murder. To the question as to whether the strongest probability was not in favor of the fall having caused the abscess he answered that it was. It will be seen that in the foregoing instance there was practically no difference of opinion, but the formulated one of liability was directly opposite. The insurance company in this case had no desire to avoid payment but merely desired to ascertain if they were liable. The state of facts as shown was such as to create a high probability that death was caused by the fall but certainly it was not so far established that it could be stated as having been so caused beyond a reasonable doubt.

As a practicable deduction from this paper I do not wish to be understood as insisting that every physician whose opinions are sought in courts of law should have a legal education, but what I insist upon and which is often lost sight of is that the practice of forensic medicine includes two parts, the law and medicine, and medical men are too prone to lose sight of the legal side of a medico- legal question.

To some, particularly our legal friends, the argument may seem trite, and they may wonder how so obvious a distinction could be overlooked, but on the strength of a very considerable experince in legal medicine I can assure you that in the application of these two rules lies the chief cause of difference of opinion among medical men. Take an ordinary case of personal injury, the question, was the disability under which the patient now labors due to the antecedent accident or not? One physician will insist that every possible explanation consistent with the accident not having caused the condition must be excluded, another will take just the opposite view and will contend that every possible relation in which the accident could stand to the iniury must be considered as an established fact. Another will perhaps take the correct view and his opinion will go to the side presenting the greatest probability.

Is it strange that with these varying rules with which they measure the value of their facts, there be such a wide diversity of opinions of medical men?

In conclusion I would sum up my remarks in the following brief sentences:

1. In civil cases the opinion of the medical expert should be in accordance with the most probable explanation of the facts.

2. In criminal cases a greater degree of certainty is required, and this should amount to the exclusion of all reasonable interpretation of the facts not consistent with the opinion given.

3. These two rules are commonly overlooked by medical expert witnesses, with resulting confusion of opinions.

Discussion.

Dr. J. G. Kiernan:—I was very much interested in the paper because in my opinion it strikes at one of the greatest elements of error that underlie much of the absurdity of so-called expert testimony. The very salutary rule of the law that in civil cases a preponderance of evidence is required and in criminal cases a much more positive condition is required is usually reversed by physicians. You must deal with preponderance of evidence on the spot. A member of a medical society of jurisprudence made that blunder. The case in which he rendered the decision was one in which a question of suicide or homicide was involved, and among the factors in the case was the possibility of a man surviving a heart wound long enough to inflict a head wound. It made no difference that there were dozens of such cases in the literature, they were exceptional cases. Until such prejudice in the profession is overcome, expert testimony will bear the odium it still deserves. I know of one instance where a medical man, in defiance of almost the entire surgical profession of Chicago, testified that shock could occur fifteen or twenty days after an alleged receipt of injury. In that case this man did not even take the preponderance of evidence, it was necessary for his theory and the prosecution to show that shock could so occur. If you turn to the records of railroad corporations you will find the

average man will pander on the one side to the corporation and on the other side to the man who is seeking to blackmail the corporation, he will swear directly to an opinion based not on views formed from a scientific standpoint or from a legal standpoint, but from the standpoint of prejudice. With regard to the question of reasonable doubt, I think that the medical profession has long been in advance of the law. In many of our States, to the disgrace of Anglo-Saxon jurisprudence, it is still held that insanity must be proven beyond a reasonable doubt; that thing has been reiterated. It is true that the profession needs rigid reformation in this direction. It is too apt in general cases to deal with the preponderance of evidence rule and too apt in civil cases to reverse this rule. There is that same element running through our jurisprudence and physicians have a deeper interest in it than would appear at first sight. There is not a physician who is not liable to a possible suit for malpractice, and many a physician has deliberately made statements against another physician that were very unpleasant when he came himself to be tried for malpractice.

Dr. Marshall D. Ewell:—On further reflection after hearing this paper I have become convinced, not that Dr. Moyer is wrong, because the conclusions of law he has stated are in my judgment entirely correct, but that the application which has been made to the subject of jurisprudence is not such as the facts of the case require. No one will dispute the statement that in civil cases the rule stated by Dr. Moyer is correct, that the jury in determining whether to find for plaintiff or defendant are to base their verdict upon the mere preponderance of testimony. In criminal cases on the other hand, the rule is quite as well settled, that the accused must be found guilty beyond any reasonable doubt, and the question of reasonable doubt extends not only to the facts but also to the law of the case so that if there be any reasonable doubt either in the facts or in the law, the accused is entitled to the benefit of such doubt. In criminal cases the guilt of the accused must be proved. Neither the mere preponderance of evidence nor any weight of preponderating evidence is sufficient for the purpose unless it proves the fact to the exclusion of all reasonable doubt. Dr. Moyer in his paper states three conclusions which seems to me are not applicable in this connection for the reason that the expert has nothing to do with this branch of the case. An expert put upon the stand, whether it be in a civil or in a criminal case, after hearing a hypothetical question stated or after listening to the testimony, is asked what is his opinion upon such cases as are given in the evidence or question. He is not asked, nor is he required by the question submitted to him, to state whether he arrives at that opinion by mere preponderance of testimony or whether he is convinced beyond any reasonable doubt. In my judgment, his sole duty is to answer the question as it presents itself to his mind whether the case be a criminal or a civil one. In some States, it is required of the expert witness upon the direct examination to state fully the grounds of his belief; in other States, he is simply required upon the direct examination to state his opinion and the grounds of his belief are elicited upon cross-examination. In an experience of twenty-five years I have never known an expert to be interrogated as to whether his belief was founded upon a mere preponderance of testimony or whether a preponderance of facts has led to a certain conclusion, or whether the facts leading to this particular opinion might not be reasonably in doubt. That is entirely the province of a jury who are to listen not only to the direct testimony of the expert including his reasons as given either in direct or cross-examination, and under the charge of the court, in civil cases, are to determine the case on the mere preponderance of testimony, or in criminal cases determine the guilt or innocence of the person upon the principle stated, that the accused must be found guilty beyond a reasonable doubt. So it seems to me the expert has nothing whatever to do with this question, his sole duty is to announce his opinion as formulated in his mind upon examination of the case according to preponderance of testimony. It is his duty upon cross-examination, or direct examination, if the practice of the court authorizes it, to state fully the facts and circumstances upon which such opinion is founded, but the responsibility in deciding the question rests entirely with the jury.

With respect to the other matters of the paper, the facts upon which the opinion is founded, it is quite true that in many cases an expert may not be able to convey to the jury all the facts which influence him in forming his judgment, but if he is asked the reason for his opinion I think he should attempt to do so, and if he does not he detracts from the weight which should be given to his testimony.

Dr. J. G. Kiernan:—I have been repeatedly asked, and I think it is the experience of every expert: Is that your opinion beyond a doubt; have you any doubt in that opinion? Or, if it is a hypothetical question, have you any doubt on that question?

Mr. Marshall D. Ewell:—I have been asked that question, and I have no doubt the courts would find it inadmissible. In my judgment such a question is not proper.

Mr. J. S. Harlan:—From a legal standpoint, it seems to me the position taken by the last speaker would meet with the approval of the lawyer more readily than the position taken by the first speaker. My idea briefly is, that the doctor in expressing an opinion upon a given state of facts, ought to express it with regard to the English rule of law. Take for instance, an injury which may be a case of personal damage or it may be a case of murder, and it seems to me if the physician in one case gives his judgment on the theory of preponderance of evidence, and in the other case gives his judgment upon the theory which obtains in criminal cases, he does to that extent usurp the functions of the jury.

Judge Richard S. Tuthill:—I want to say that I think it would be pretty hard to keep my brother King over there if he was examining a witness, from trying to find out how much of his opinion was positive and how much doubt, and I cannot see how the court could forbid the lawyer to ask any question which would show whether the expert witness was positive in his statement or whether his opinion was merely a possibility.

Mr. J. C. King: On cross-examination where a physician had given his opinion as to what was the cause of the existence of certain things after facts being stated, I would want to know whether he held that opinion so strongly that he would act upon it in a matter which concerned himself, or whether it was an opinion where he had certain doubts. The other questions of Dr. Moyer pleased me very much. I think it is well that physicians should be educated upon those points of legal admissibility of evidence and the legal manner of forming an opinion.

Dr. J. M. G. Carter:—As chairman of the committee on medical legislation appointed by the State Medical Society of Illinois at its last meeting, I would like to make a statement of some work that has been attempted this winter, in which we would be very glad to enlist the interest of the gentlemen present. This committee was appointed to prepare a bill to revise the law concerning medical expert testimony. The desire of the committee on medical legislation was that such a bill should be prepared as will allow the evidence on both sides of the cases in which experts are called to be submitted to the physician, that he may prepare his opinion with all the evidence before him, believing in that way we may get an unbiased opinion from physicians

and that their opinion may be established beyond a reasonable doubt; an opinion, as Mr. King says, that they would be willing to act upon in their own affairs.

Mr. Marshall D. Ewell:—It doesn't seem to me that a Bill of that sort would in the least remove the difficulties which at present surround the expert testimony. The opinion of expert witnesses formulated after a study of the whole evidence might perhaps have a trifle more weight as being accompanied by more deliberation, but it must be decided by the great test of thorough cross-examination under our system unless you propose to change the whole system of the administration of justice and I doubt whether it would in the least improve the present system.

Dr. J. Frank Lydston:—Within the last ten days a case has come under my observation that is an excellent illustration of the fickleness of mind of physicians when called upon to testify as experts as to the cause of death in cases involving legal complications. This was a case in which a claim was held against an accident insurance company to the effect that a certain individual had fallen down stairs and broken his neck. He had gone out on some errand and shortly afterwards was found dead at the foot of a stairway, and it was claimed that he had fallen. At the time of death the report was circulated about the neighborhood that he died of heart disease, but subsequently it was claimed by the family that he died of a broken neck and a certificate to that effect was given by the family physician. The accident company saw fit to dispute the claim and in order to ascertain the facts demanded an autopsy, which was held two or three weeks after the death of the individual and a very thorough examination was made by Dr. Hektoen. It was found beyond a doubt that there had been no accident to the spine or to the neck, there were no evidences of fracture. Nothing was found that could account for the death except myocarditis. A little discussion was held on the subject coming in from the cemetery, and the gentlemen representing the family still maintained that the man was killed by falling down stairs and said he died of shock. It was held in the first place that there was a broken neck but it was shown by the autopsy that that was not the case so they fell back upon the theory of shock.

Dr. H. N. Moyer, in closing the discussion, said: I am exceedingly gratified at the discussion my very brief paper has evoked. I am also pleased with the fact that it has brought out quite a difference of opinion among our legal friends; doctors are said to agree with difficulty or not at all, but the agreement of doctors is a harmonic symphony compared with that of lawyers.

Judge Ewell advanced the same doctrine, that juries are the judges of the facts and the law. I said that was a barren fiction of law, there are certain elements in the case that cannot be brought into court and I know they are not brought there. There are two elements in expert testimony as a rule, sometimes an expert simply listens to testimony and gives his opinion on it, that is all there is to it, but in the maiority of cases he examines into facts, makes a post-mortem examination, examines the patient, examines specimens of blood, the stomach or something of that kind, and he presents both fact and opinion. Now I ask in the name of common sense and logic, if the jury is the sole judge of the facts, why permit the doctor to express his opinion, what is the use of it? But if you are going to allow him to express his opinion, why not furnish him with some means by which he is to form that opinion. Take cases of personal injury which I had in mind when I wrote these words, "One physician will insist that every possible explanation consistent with the accident not having caused the condition must be excluded; another will take the opposite view and will contend that every possible relation which the accident could sustain to the injury must be considered as an established fact." I have met that over and over again. One physician will measure the facts with a foot rule two inch long another will use one fourteen inches long and of course they must arrive at different opinions. It seemed to me when I was county physician that when I brought in an opinion that a person's death was caused by a certain blow he had received, that it was directly attributable to a certain injury I found upon his body, that if I did that thing and was not convinced of it beyond a reasonable doubt, I was guilty of giving false testimony. If I go into a civil case where a railroad company has injured a man and he claims that diaphanous condition known as "spinal concussion," I try to put myself in the frame of mind to try to determine what are the probabilities of the case. It seems to me there is no getting away from the primary proposition of opinion, one doctor says the accident did not cause this condition, the patient is perfectly well. Another doctor says the patient has spinal concussion and is hopelessly injured. If you put these two doctors together to consult over this case, there will not be the slightest practical difference of opinion in a court of law. Simply because they have had a different rule to measure the facts. I believe if doctors would take into account in formulating their opinion the same factors as pertain to legal questions there would be much more uniformity of opinion and we would get better results in forensic medicine.

Dr. Richard Dewey, Superintendent of the Illinois Eastern Hosiptal for the Insane, read a paper entitled

THE PROPOSED LEGISLATION REGARDING THE COMMITMENT OF THE INSANE.

There are many matters of importance to both physicians and lawyers connected with the commitment of the insane, but I shall confine my remarks mainly to the question of the necessity and expediency of making a jury trial a test of the question of insanity, so far as commitment to an institution for the insane is concerned.

The jury trial is one of the great safeguards of Anglo-Saxon liberty and has its necessary function, but the jury trial has also its element of weakness which have led to criticisms from high authorities upon its value even in ordinary cases, and the jury trial as applied to insanity or coroner's cases presents even greater difficulties. Some of the weak points of the jury trial have furnished the motive for mirth in comedy and opera. The saying about the uncertainty of a jury verdict by a famous legal authority has become proverbial. The "crowner's quest" has been a subject of merriment since the days of Shakespeare and the "lunacy quest" might be equally so, but the fact of the great misfortune, often worse than death itself, with which the lunacy inquest must deal.

Insanity has a two-fold relation, with one side of it the physician has to deal. With the other courts and lawyers and the conflict of views is what may be expected from the fact that the physician sees one side of the shield and the lawyer the opposite side, and the views of both have come in collision and will continue to collide until the essential truths relating to both sides have been indisputably established and until all the faults and mistaken ideas of each side have been destroyed. There need be no fear but that which is true will be ultimately discovered and will be permanent while the contentions existing on the opposite sides will each serve the useful purpose of destroying the errors of the other side.

It is known to my hearers that the State of Illinois, by its legal enactment makes it obligatory that all persons who become insane and who are sent to any hospital or asylum for treatment shall appear in court and public proceedings shall be instituted to determine before a jury whether the

individual in question is or is not insane and I will speak first briefly of the effect upon the welfare of the insane of this obligatory jury trial. In the first place, the proceedings are analgous to those taken in a criminal case. A complaint is lodged with the judge of the county. The individual is arrested and brought into court, a hearing is had before a jury, which finds a verdict of sanity or insanity as the case may be. If the latter, the patient is then committed, or one may say, "sentenced" to the asylum, taken charge of by the officers of the law and delivered to the institution in almost the same manner in which a prisoner found guilty of crime is taken to the penitentiary. The effect of this method of procedure is injurious to the patient and creates wrong views in the public mind. I have more than once had letters from judges and officers of court as well as other intelligent men stating that such and such a person had been "found guilty" of insanity or "convicted" of insanity, which is as absurd as saying that an individual has been found guilty of pneumonia, typhoid fever or St. Vitus dance, but the effect of this method of procedure upon the patient is more important. It is exceedingly common for the unfortunate patient in a more or less disordered state of mind to conceive the idea that he or she has been accused of some crime or offence unjustly; found guilty, and sentenced to the hospital for punishment. Again and again patients are heard to say that they have committed no crime and to beg for an opportunity to vindicate themselves. This is most unfortunate for the mental state of the patient, especially if there be any possibility of improvement and recovery, for it operates as a hindrance and a continual source of irritation and disturbance in the patient's mind.

But another great injury which results from the existing method of commitment is that the jury trial and appearance in court acts as a serious delay or a complete hindrance to a large number of patients going to the hospital at all when it is important for their own welfare and that of the community that they should go, or when so great delay is caused by the repugnance to the jury trial that the patient is not committed in the early stages of the disease and while the case is still curable in its nature, but only after the patience and resources of the friends are exhausted and the case has become chronic. Not a year passes in which scores of cases are not allowed to become chronic and hopeless by this dread on the part of the patients and their friends of the exposure of this sad misfortune to the public gaze in open court. Insanity is no longer regarded as a disgrace by the more intelligent of the community, but all persons possessing ordinary sensibilities and the pride which is natural to all will hesitate long or absolutely refuse to have their misfortune made a spectacle of in court. Furthermore the effect upon the patients of the court trial is exciting and disturbing in a greater or less degree whatever be the form of insanity. The trial often also necessitates great hardship, especially in the rural districts where patients who are sick and feeble have to be taken long distances over rough roads in cold weather to the court and after the court proceedings again take a tedious journey to the hospital.

But whatever the difficulties and the injuries produced by the jury trial, it will be said by the lawyer—and no physician will disagree with him—that the sacredness of personal liberty which the jury is intended to secure is of greater value, and is not to be weighed against any hardships whatever, and here we come to the important question, and the one to which I wish mainly to limit my remarks. The question is whether a jury trial is the best means of determining insanity. Insanity is a disease, and the physician at once says it is no more necessary to subject a question of this disease to a jury than that of any other disease, but the lawyer replies that insanity is a disease requiring oftentimes that its victim shall be restrained of his liberty, and a "jury of the peers of the sick man must determine the question. It is not a medical but a legal question." The fact is, it is both, and the legal and medical mind should combine their efforts to secure the best possible results. In speaking of a "jury of peers" an inconsistency is brought out, for it is idle to talk about the "peers" of a person suffering from insanity being selected for jury duty. It is as idle in many cases to the mind of the physician as it would be to require a jury affected with rheumatism or mumps to pass upon the diagnosis of those diseases. But we all know that cases exist which are obscure, in which there may be a reasonable doubt as to insanity; and in these cases there should be ample provision against any mistake being made, and if a jury trial or any other measure will prevent mistakes, by all means let it be provided!

Now let us see how much certainty against mistakes is provided by the jury trial, as shown by the records I have obtained from the State Insane Hospitals. The records of the Illinois Central Insane Hospital have not been kept in a way to show the number of mistakes made by juries in the question of insanity, but the Superintendent, Dr. H. F. Carriel, writes me as follows:

JACKSONVILLE, March 1, 1893.

DR. RICHARD DEWEY, KANKAKEE, ILL.:

My Dear Doctor:—Replying to yours of the 27th ult. will say, I have kept no record of the number of persons who have been sent here and not considered by the officers of the institution to be insane, nor have I kept a record of insane persons who are found sane by a jury but who are really insane.

There have been occasional cases of inebriety, opium and chloral habitués that would hardly come under the proper designation as being insane, but I have never gone behind the record in these cases, and have got rid of them in one way or another as best I could.

It has not infrequently come to my notice that insane persons are declared sane by a jury. Cases like the following are not infrequently narrated to me. Patients come to the institution who have been deranged a year or more, and upon inquiring of the friends why they did not bring their friend to the institution at an earlier period, they have replied that they did make an effort at some previous date to have him or her declared insane, but the jury failed to find him or her insane. I have one case in mind of a woman who is now in the institution, and who has been one of the most disturbed and insane patients in the institution for the last year. She was taken before a jury and declared not to be insane, although she had been a patient in this institution on three occasions previously. The friends were so sure that she was insane and that she would soon make such demonstrations as to convince any one of her insanity, that they took her to a hotel and remained at the county seat over night. In the middle of the night she made such a hullabaloo, banged furniture about the room and was so disorderly in general that the next day another jury was empaneled, and the friends had no difficulty in getting her declared as an insane person.

No new developments here. I am suffering from a severe cold, and do not know as I shall be able to go up to Springfield this week. I wish, however, if you come down you will let me know, and if possible I will meet you at the Capital.

Yours very truly,

H. F. CARRIEL.

At the Illinois Northern Hospital at Elgin the records show that thirteen cases committed to the hospital by jury verdict were cases in which no insanity existed and the patient was discharged as "not insane." This has occurred in twenty-one years among 4,402 patients. The Illinois Southern Hospital at Anna has received, I am informed by the Superintendent, in the last twenty years, nine persons who were tried by juries and found by them to be insane who afterwwards proved to be "not insane" and were so discharged. In my own experience at the Hospital at Kankakee, in fourteen years seven patients have been found "not insane" who were committed as insane by juries. This

out of a total of about 6,000 admissions. On the other hand, a very large number of cases have occurred in which persons were found "not insane" after a jury trial and were subsequently within a short time proven to be so demonstrably insane that a new trial and commitment to the hospital became immediately necessary. I have personally known of twelve cases of this character, and have no doubt the history of other institutions would furnish a parallel to this, but have not the exact data. So much for the accuracy of the jury trial. These twenty-nine sane persons sent by the juries to the insane asylums, and twelve cases in one institution who ought to have been sent, whom juries failed to send. I doubt whether the records of any State which has other forms of commitment by certificate would show a more glaring record. I am not, however, in favor of abolishing the jury trial. Far from it; let it be placed by the statute securely within reach of any and all persons supposed to be insane or the friends of such who may desire a trial, and the "Bill for an Act to revise the law of commitment of the insane" which fs now pending in the Legislature provides freely for the jury trial for all who may ask for it.

The theory of the law as generally expressed or implied in legislation is that the only proper reason for commitment to an institution for the insane is the element of danger to the patient or to others in the fact of insanity, and the law seems not to contemplate the sending of any person to the hospital for insane who is safe to be at large. In this the nature of insanity as a disease, and a curable disease is wholly overlooked, but the enlightenment and the progress of medical science of to-day have shown that insanity is a disease, and is a curable disease, and that the patient is entitled above all things to the benefit of care and treatment in the early stages, and that the element and prospect of cure should be a governing consideration in deciding as to the commitment of an insane patient. It is not perhaps generally known to medical men that insanity, when treated in the early stages, is a highly curable disease. Of 100 patients who receive hospital treatment within three months of the onset of the disease, on an average sixty to seventy-five will recover. If treatment is not given until six months have elapsed the percentage drops to 49 or 50, and if we wait a year it still further goes down to 20 or 25, and any legislation for the commitment of the insane ought to take into account as one important factor in commitment of the insane the cure of the disease as an important object. In this same connection I desire to speak of another feature of importance corporated in the law now pending. This is a provision for "voluntary commitment" on the patient's own application. It often happens that patients in the incipient stages of insanity fully realize their danger and desire treatment at a time when no jury would find them insane and when a physician could hardly give a certificate of insanity. I have been applied to again and again, as have all officers in charge of large asylums, by patients seeking admission, knowing its importance but unwilling to encounter the trouble, the expense and the exposure of a legal commitment. I have again and again been obliged to decline to receive such patients and seen them brought forcibly to the hospital a few weeks or a few months later, at a time when the insanity had become completely developed, and when the most favorable stage for treatment had passed by never to return.

Finally, in reference to the jury commitment, I would again ask the question whether danger to personal liberty would exist in the law now proposed? It is to be said in the first place that no law will be absolutely perfect in its working. Errors, mistakes, and even wrongs may occur under any possible system, but upon the principle of the greatest good to the greatest number it is, in my opinion, important to do away with this compulsory requirement of the jury commitment now exacted for each and every insane person, however plain the case of insanity, however unwilling the patient and the patient's friends may be to submit to it, however great the injustice it works to the insane by wounding their feelings, fostering and increasing delusive ideas and fancied wrongs, and furthermore, in delaying the commitment to the hospital, rendering oftentimes a case which would otherwise be curable, altogether hopeless, for this is undoubtedly the effect produced yearly in the case of scores of patients whose friends will not subject them to it.

Again, another evil growing out of this law is that patients are sent out of the State in large numbers to be treated elsewhere, and if there is any probability of a wrong being done them such a thing is facilitated by their removal to a distance from their home, while an excuse is furnished for such removal by the oppressive law in operation in this State.

With reference to the possibility of conspiracy to kidnap and defraud sane and innocent persons it is to be said that proceedings of this kind, while they may occur, are not common. They are far more frequently met with in the columns of sensational newpapers than in actual every day life. Almost without exception the cases which lead to complaint and public inquiry are cases not of sane persons who have been deliberately wronged and abused, but of patients who live along the border line between sanity and insanity and with respect to whom there might be an honest difference of opinion. In my experience of over twenty years I have never known of a conspiracy against a sane person, though I have known cases in which persons were unnecessarily sent to the asylum, *i. e.*, mildly insane persons who could be cared for at home, but their family or friends wish to be rid of them, and this is as readily done with a jury as shown by the past.

It is my opinion that if legislation shall be secured providing the jury trial for all who desire it, and in other cases allowing a commission to inquire into the question of insanity at the discretion of the court, that a substantial benefit may be secured. The aforesaid commission to be composed of qualified physicians in regular and active practice who are residents of the county and are chosen by the judge himself on account of their known competency and integrity, who shall make a personal examination of the patient and file with the clerk of the court a report in writing verified by affidavit of the result of their inquiry, together with their conclusions and recommendations. The judge and the said commissioners shall also have power to administer oaths and take sworn testimony. The proposed law also provides that the court may, if not satisfied with the finding of the jury or commission, set the same aside. Further, that the finding of the commission shall be recorded at large in the court records, also that appeals may be allowed to a higher court.

In closing, I may cite the experience of other States that do not have the obligatory jury trial. They are all the best and most enlightened States of our Union. None of the New England, or the Middle, or Southern, or Western States commit as we do by jury trial. In fact, the State of Colorado is the only one beside the State of Illinois which makes this jury trial in all cases obligatory.

Discussion.

The following letter from Judge Thos. B. Moran was read:

CHICAGO, March 4, 1893.

CHARLES A. BROWN, Esq.,

Dear Sir:—I find it impossible to so arrange the matter as to permit me to be present at the meeting of the Medico-Legal Society this evening. I regret that I cannot be present to listen to the discussion and perhaps add a word or two of my own. I have carefully read the proposed bill and I am satisfied that it would be a great improvement on the

present law with reference to the commitment and care of insane persons. It seems to me that the provisions made for an inquest of insanity are such as insure as fully as it is possible the protection of sane persons and the proper commitment of the insane. The trial by jury now required by law and the required presence of the insane patient in court at the trial are unnecessary in my opinion and tend directly to defeat what should be the real purpose of the law. A commission of physicians acting under the control and direction of the court will reach a more intelligent conclusion than any jury such as is now obtained in practice can possibly reach upon the question of the sanity or insanity of the person on whom the inquest is held. The proposed bill secures the right by jury where it is demanded, or where the court in its discretion sees fit to direct such trial. This, it seems to me is a sufficient safeguard against attempts to incarcerate sane persons upon the finding of a commission without the intervention of a jury. It is probably the fact that persons who are not insane have in some instances been committed to insane asylums through conspiracy of relatives or friends. That may occur as well where there is a trial by jury as where there is a trial by commission and in my opinion there is a great deal of sentimentality indulged in with reference to the commitment of sane persons to insane asylums, with very little basis of fact for its support. Proper treatment of the insane requires early treatment and a power of commitment which may operate quickly and quietly and thus avoid the irritation and confinement in jails or detention hospitals before trial, which are not so prepared as to be proper places for the residence of insane persons.

From the best consideration that I have been able to give the proposed bill, I am heartily in favor of its adoption in this State in place of the provisions of our present statute relating to the commitment and care of the insane.

I send you this hasty line in order that you may, if you see fit, state its substantial contents to the meeting this evening.

Yours very truly,

T. A. Moran.

Dr. Harriet Alexander:—As chairman of the legislative committee of the reform department of the Woman's Club, we started to draft a bill in regard to the commitment of the insane, when I received a copy of this bill, which seemed to answer all the needs. One thing Dr. Dewey did not speak of which I think is of special interest in this bill, that is the placing of patients in restraint.

My attention was called to this point on a visit to Cook County Asylum to-day. There were six persons in one ward in restraint, I asked the attendant if she had orders for placing them in restraint, she said she had not. I asked the physician in charge, who I think is simply the victim of a bad system; she said there were standing orders to put patients in restraint, and they were always put in restraint when they became violent without reference to the physician in charge. I do not suppose that a clause could be added, in regard to the free administration of sedatives which is allowed, but it seemed about as bad an evil as the free administration of restraint. At our County Asylum it is the practice to give to the night watch a small bottle of sedative mixture which she gives ad libitum whenever the patient becomes troublesome.

Judge Richard S. Tuthill:—It seems to me there is an absolute necessity of change in our law. I have observed, as every one has, in the course of insanity cases that are adjudicated upon, the excitement and trouble that is caused to the patient by his appearance at the trial, and more than that the state of affairs that exists in the detention hospital where all are equally brought and kept, always I think, for several days, and sometimes for several weeks, awaiting a trial. They are restrained where they cannot be treated, and are brought into contact with the violent and most disturbed class of patients, and it seemed to me that it must necessarily result in very great injury to them, and I have no doubt that it is so, and being satisfied of that I cannot think of any better work this Society could engage in than lending its influence to assist in the passage of this law. We know that what is everybody's business is nobody's business; Dr. Dewey told us how at the last session of the legislature for the lack of anyone giving it personal attention, a similar bill failed to become a law, and I think we ought to assist as much as we can in securing the passage of this law by the legislature. I therefore move that it is the sense of this Society that this law now before the legislature should be speedily enacted, and that the Secretary of this Society be instructed to communicate this resolution to the legislature or to the committee having the bill in charge, both in the Senate and House of Representatives, and to urge upon the legislature the passage of the law.

Mr. Marshall D. Ewell:—I doubt whether this proposed law would be held constitutional on an appeal to the Supreme Court, as we have a constitutional provision in this State that no man shall be deprived of his liberty except by the judgement of his peers. While I have no doubt that the judgement of those who have studied the bill is in the main correct, at the same time some things about it ought to be changed. This voluntary clause, for instance, providing that any person who may in the early stages of insanity desire treatment and may voluntarily enter the hospital, contains this proviso, that all voluntary patients shall have the right to leave the hospital at any time upon giving three days notice to the superintendent. Suppose one of these voluntary patient's staid there long enough to develop a homicidal tendency, how absurd, how criminal it would be to discharge a patient of that sort; that certainly ought to be left out.

Dr. J. G. Kiernan:—The commitment of the insane is permitted on the certificate of two physicians, in England, a country that is most zealous of personal liberty. New York has a similar law which has been held to be constitutional by the Appellate Court. It does not interfere in the slightest with the right of citizens to a trial by jury. In regard to the clause permitting the release of a voluntary patient on three days notice, any citizen has the right to secure the arrest of a person showing a homicidal tendency, and the three days limit will be found ample to answer that purpose.

Conspiracies have never been shown to exist by what is a fair test, that is a suit for damages for false imprisonment. In the last year I have followed ten such cases where suit for false imprisonment was brought and in every case the defendant won the suit.

Judge Richard S. Tuthill:—This bill does not propose to take from any one the right of jury trial. Jury trials are waived every day. A man can plead guilty in a criminal case and waive a jury trial. This bill gives to every citizen a jury trial if he wants it. In Massachusetts, New York and Pennsylvania, where the best systems of jurisprudence are in operation, and where there is most jealousy of personal liberty, they have this law. I think this bill has been well considered and I have no question as to its constitutionality. Judge Moran, who is a good judge and a good lawyer, has examined it and thinks it is all right, and it is to go before a Legislature composed largely of lawyers, so I do not think that we should hesitate to take some part in this matter.

Dr. H. N. Moyer:—It seems to me from the standpoint of the insane that this is an excellent bill in all particulars, and if the Supreme Court declares that it is unconstitutional, we may have it in operation twenty years before it goes there, and even then there will be only one or two clauses that would go by the board, and we would have the benefit of the main features of the law. But the difficulty will be in getting this bill passed. I almost feel like blushing for American institutions and government by the people. For twelve years back bills have been pending in our Legislature endorsed by doctors and societies like this.

Dr. Richard Dewey in closing the discussion said: There is one thing that perhaps ought to be spoken of. Some legal gentlemen who have been rather opposed to abolishing the present method say, "Why, you have a doctor on the jury," and they intimate that this is just as well as the method contemplated by this bill. I would like to call the attention to the difference between the medical talent usually found on a jury as now brought together for trial of insane cases, and the physicians who would furnish certificates of insanity under this law. A jury is made up of both medical men and laymen from those who happen to be around the court who are doing jury duty, and to whom the small fee it brings is a consideration. There are of course exceptions to this rule, but you do not get a medical man on a jury, ordinarily, who has expert knowledge of insanity or is of average weight as a medical authority, whereas this bill provides that physicians should be selected by the court for their integrity and standing, who are thoroughly qualified and have been in active practice for a length of time, and it is evident that in this way a very much better medical opinion may be obtained.

On motion the resolution presented by Judge Richard S. Tuthill was unanimously adopted.

ARCHIBALD CHURCH, M.D., Sec'y.

American Electro-Therapeutic Association.

Second Annual Meeting, held in New York, October 4, 5 and 6, 1892.

WILLIAM J. MORTON, M.D., PREST.

SECOND DAY, OCTOBER 5—MORNING SESSION.

(*Continued from page 366.*)

No therapeutic measure to-day offers so sure and complete results in mal-development of uterus and appendages as electricity scientifically and timely applied. Faradization may be depended upon to perfect development of the muscular tissue, and for its stimulating effect on the involuntary fibres of the walls of the blood vessels.

The galvanic current, if properly applied, produces a determination of blood to the parts, thereby affording pabulum for development of tissue and improving the nutrition.

Faradization may also be so altered as to produce a sedative effect on the nervous and muscular tissues. Hence we have in this element, electricity, all the requisites for development, and means by which physiological conditions are almost identically produced and pain relieved.

It accomplishes what rest, diet, massage and drugs cannot. Its benefits are permanent and may be confidently relied upon to produce unfailing results. It is easy of application, giving little or no pain, and without danger. Its future in gynecology, I am satisfied, is great from the standpoint as a potent means of developing feeble organs. Its best results are to be obtained in youthful subjects whose tissues are in a plastic state, and especially not in those in whom a mal-development has existed sufficiently long to produce atrophy.

This treatment to be successful must be frequently applied and extend over a period of months. No one can question the correctness of the position taken in this article as to uterine development who has ever seriously considered the injurious effects of modern forms of female dress, and the mental work required, and the limited amount of exercise taken.

The following cases I quote as corroberating my position:

Miss E., age 14 years and 9 months, on April 25 was committed to my care. She presented the appearance of health so far as flesh, activity and appearance was concerned, she would laugh with little cause to induce the same. She wa very childish both as regards her appearance and actions, her appetite was very good, and she complained of nothing but epileptic attacks recurring every few days and growing "more serious," as her mother described it. Her family history was good; no member ever having had hysteria, epilepsy, rheumatism, scrofula or phthisis, her sisters (four) all older than herself having menstruated at the age of 12 years, and having regular periods throughout.

Her mother gave the history of catamenial periods having occurred at 12 years and being normal throughout; but this girl had never menstruated at all. About the age of 12, she had her first epileptic convulsion, they came on monthly and the period between each attack grew shorter; she had consulted two physicians who I suppose had thoroughly exhausted the therapeutics vaunted as beneficial in epilepsy. I made an examination per rectum and with difficulty found a small infantile uterus and could detect no ovaries. Vaginal examination reveals a uterus with a depth of only one inch, the hair on the pubes was normal. She complained of pain in her bowels at times. I prescribed bromide, bicarb and iodide of potash in heavy doses with no beneficial results, but on the contrary the attacks seemed to increase both in frequency and severity. At her first visit I applied vaginal faradization with external pole over abdomen followed by galvanism. I soon left off the bromide and iodide of potash and gave her only a tonic of iron. Two and three times a week I applied first the faradic current, one pole over the back of the neck and the other to the right and left fornices and intra-uterine, at times using the os electrode. This was usually continued 10 minutes, after which I used the galvanic current, using intra-uterine and vaginal electrode for ten minutes, never going higher than fifteen milliampères and using the negative pole as the active and inactive over the abdomen. After the first month's treatment this patients' "epileptic fits" began to be less frequent but continued unabated in severity. I neglected to say in giving her symptoms that she was very nervous. This condition of affairs continued unimproved.

The second month witnessed a decline in the severity, and the epileptic fits occurred now only every two weeks, but the attacks of "nervousness" continued.

The result of the third month's treatment witnessed the return of the last attack which was not very severe, but the nervous attacks continued. The end of the fourth month's treatment is recorded as follows: no convulsions for four weeks, breasts enlarging, and looks and acts more like a woman, the ovaries can be detected on each side nearly normal in size, the uterus is at least twice as large as originally in April. "The sound enters more than $1\frac{3}{4}$ inches, the uterus looks quite vascular, and while the catamenial periods have not appeared, I confindently expect them soon, the "nervousness" continues, but in a modified form. Sept. 25, completed the end of the fifth month of treatment, the sound enters $2\frac{1}{4}$ inches, the uterus appear normal in size, no epileptic convulsions for eight weeks, the uterus still looks quite vascular, the mammæ are still developing; she is becoming shy and evidently will soon have menses occur.

Sallie O., age 16 years; in 1890, was referred to me by Dr. C., for the treatment of convulsive attacks of hysteria, occurring monthly, and amenorrhœa. This girl gave a family history free from diatheses, sisters as regular catamenia, and healthy since the age of $11\frac{1}{2}$ years. She had persisted in tight lacing and at the age of 13, she had a short and scanty flow, on the month following at the time corresponding to this period, her first attack of hysteria came on, she was unconscious but soon rallied and in a few days was well. No catamenial period. This condition continued until May 1890, about two years after her first attack. I examined the uterus, found the cervix about $\frac{3}{4}$ inches as I

could best judge, and the whole cavity only 1¼ inches. The ovaries were scarcely to be felt, being so small, but the hair on pubes was abundant. The mammæ were poorly developed, otherwise she was well and bright. I commenced treatment by applying faradization to the right and left formices and intra-uterine the external electrode over the abdomen. This was continued at each time for fifteen minutes. This was repeated for one month and much to my surprise, though I gave her anti-spasmodics, the hysterical attacks did not recur. The second month I combined the galvanic current with the negative pole active to the interior of the uterus (always succeeding faradization) for the period of ten to fifteen minutes using fifteen milliampères. This was repeated twice a week. At the end of this month she had an attack of hysteria, due to excitement I am sure, as the third mouths' as well as the seconds' treatment was to leave off the anti-spasmodics, and the treatment was the same as the second, except near the time I expected the attack of hysteria, then I gave only the galvanic current daily for fifteen minutes, using only about ten milliampères. This was to result in no return of hysteria, nothwitshanding she left off the anti-spasmodics.

The fourth month's treatment showed the mammæ enlarging and the sound entered two inches, and the uterus three days previous to catamentia was expected, very vascular. It was then I ordered warm hip baths. Aloes, myrrh, and manganese bin exide had been ordered ten days previously, and quiet enjoined, and to my delight the catamenial periods came on slightly, but with so much pain as to necessitate the administration of an anodyne, for the whole thirty hours the period was on, and twelve hours previous to its appearance. The fifth month's treatment was much the same as the fourth, save that the applications were not so frequent. But at the end of this month the pain was mild and the flow continued for two days but scant. No hysteria. The sixth month, the application was the same, but only once a week. The catamenia now came on without pain and was free enough as to flow, and its duration was for four days. The seventh month the treatment was given only twice, and that gradually diminished in force and durtion. The uterus was now 2½ inches in depth and everything appeared normal, and the patient was discharged as cured and has since had no return of hysteria. She has since married and is now pregnant.

Case 3.—Jennie E., age 16 years, and has had catamenia regular but scant flow and dysmenorrhœa since 13 years of age. Consulted me in June, 1890, for hysterical attacks before and after catamenia; examination revealed small os, small uterus and hyperasthetic ovaries, and sound entered only to the depth of 1¾ inches. The treatment was faradization followed by galvanic current, and after second month flow came free and lasted four days. The pain from dysmenorrhœa ceased after the third month, the sound entered 2¼ inches, and the hysteria disappeared.

Case 4, was a woman who had been married for five years. The flow had always been very scant and duration long and painful, and I am satisfied that this condition of affairs was due to mal-development, for the sound entered only 1½ inches, and the uterus was small. She was married at 20; at 25 had never been pregnant. The treatment was faradization until five days prior to expected catamenial period, when I gave her two negative intra-uterine applications lasting five minutes of thirty milliampères. The flow was slightly improved in quantity. The second month treatment was about the same and flow improved in quantity and pain disappeared.

The third month the uterus was increased in size and the pain less, the duration normal, and after the fourth month the sound entered 2¼ inches and everything appeared normal. The treatment was stopped, and after two months the flow stopped and she consulted me again. I suspicioned pregnancy and advised her to return in two months. She did so and I found her pregnant and afterwards delivered her of a healthy child.

Five, six, seven and eight are cases of dysmenorrhœa occurring in girls ranging from 15 to 20 years of age, in which the dimensions of the uterus was in all cases below normal, and in which drugs had been used with temporary relief. In such instances faradization followed by the negative pole of the galvanic current relieved the patients permanently and restorred the dimensions of the uterus.

This much of experience has led me to believe, 1st. that mal-development is more frequent than is supposed. 2nd. that it is responsible for a large per cent. of female diseases. 3d. that a great many reflex symptoms are due to mal-development not generally attributed to this cause. 4th. that faradization followed by galvanic currents is the most reliable means we have of developing the uterus.

Discussion.

Dr. von Raitz said that about seven months ago, a married woman applied to him on account of sterility. There was almost no cervix present, and but very little fundus, and the sound passed in only three-fourths of an inch. She was told that the sterility was due to lack of development of the uterus, and in addition to measures directed towards improving her hygienic surroundings, a strong faradic current was employed. After about four months she conceived, but aborted at about the fifth week. The treatment was resumed, and at present she is in the third month of pregnancy.

Dr. Mosher, of Brooklyn, said that infantile uteri were more common than is generally supposed, and the cause is evident to all who have studied the habits of our young girls at the age of puberty; their dresses are made longer and they are not allowed to exercise as much as formerly. While admitting that electricity will stimulate the growth of the sexual organs, and improve their nutrition, it cannot be denied that the local treatment of these young girls is morally and physically bad, and on this account, she thought this Association should not advocate this treatment except in such serious conditions as epilepsy where other measures will not suffice. Electricity should not be resorted to until the every-day careful treatment by gymnastics has been given a fair trial. Her experience in gymnastic work had given her an excellent opportunity for extensive examination of this subject, and her work had compelled her to examine many young girls by the rectum where it was necessary to note the condition of the pelvic organs before allowing them to begin such a course. She had been surprised at the number of girls having small uteri, and she had been likewise surprised at the growth following upon a course of gymnastics. Such exercises not only increase the size and improve the condition of the pelvic organs, but may even improve malpositions.

Dr. Goelet heartily endorsed the views expressed by the last speaker. If, he said, we find that physical culture is not sufficient, we can employ in conjunction with it, the galvanic current, applied externally, with the negative pole low down on the spine, and the positive pole at the nape of the neck, and repeated two or three times a week. Of course, where such a serious condition as epilepsy is present, the treatment is much more effective if with the negative pole in the uterus, and the indifferent electrode over the lumbar region a moderate current be applied every other day. Each seance should terminate by the application of the application of the faradic current, connecting the same electrode with the negative pole. If this is not sufficient,

then recourse should be had to Apostoli's bi-polar intra-uterine faradization with the current from a coarse wire coil. He had tried dilating the uterus for the relief of epilepsy, and where the menstrual function had become established, the epilepsy was relieved.

Dr. Hall Brown, of Brooklyn, said she wished only to place herself on record along with Dr. Mosher regarding the avoidance of local treatment except in some persons having some specially serious condition, and to express her belief that proper attention to dress and general hygiene would prove sufficient in most cases. Where it was found necessary to use electricity, she would favor only external applications.

Dr. Cannaday, in closing, said he thought all were agreed that local treatment should not be employed until everything else had failed, but the case of epilepsy which he reported, seemed to be sufficiently severe to warrant the treatment of which he had adopted with a view to establishing the menses, and the cases 2 and 3 had been treated by pessaries and applications to os; 5, 6, 7 and 8 resisted everything, even the current as suggested by Dr. Goelet.

The president announced the appointment of the following committees:

On Static Machines.—Drs. Kellogg, Cleaves, and Massey. On motion Dr. Morton was made chairman of this committee.

On Constant Current Generators and Controllers.—Drs. Herdman, Peterson, and Newman.

On Electrodes.—Drs. Rockwell, Nunn and Dickson.

SECOND DAY—EVENING SESSION.

DR. W. J. MORTON, PRESIDENT, IN THE CHAIR.

EXECUTIVE SESSION.

The meeting was called to order at 9:30 P.M.

Report of the Secretary: The President stated that there was no formal report—only the transference of the office to Dr. Newman.

Treasurer's Report: Dr. Nunn reported that he had received no money, and had paid out none, for the past year, and had no account except "balance received." On motion, the out-going Secretary was requested to make a report to the present Treasurer of the money which he had handled.

On motion, the election of officers was next considered.

Dr. A. H. Goelet was nominated for President.

Dr. W. F. Hutchinson was nominated for first Vice-President.

Dr. W. J. Herdman was nominated for second Vice-President.

On motion, the Secretary was instructed in each case to cast a ballot for the election of these officers.

After some discussion as to the advisability of having a permanent secretary, the election of officers was continued, and in the same manner, Dr. Margaret Cleaves was elected Secretary, and Dr. W. J. Nunn Treasurer.

Executive Council: On motion, the following were balloted for "in block," and were elected: Drs. Morton, Newman, Massey, Dickson and Kellogg.

After some discussion, Philadelphia was selected as the next place of meeting, and it was decided to hold the meeting next September, on the Tuesday immediately following the adjournment of the Pan-American Congress. On motion, the Secretary was instructed to notify the Secretary of this Congress of this arrangement.

After discussion, it was decided to vote upon an amendment of Article III of the Constitution so as to read: Members of this Association shall consist of ordinary and honorary Fellows, who shall be either practitioners of medicine in good standing, or electrical experts.

Committee of Arrangements for next year: The President appointed Drs. Massey, Bigelow and Grier to serve on this committee.

"The Phonograph and Micro-Phonograph," was the subject of a lecture by J. Mount Bleyer, of New York. After demonstrating the action of these instruments, the meeting adjourned. The remainder of the evening was devoted to a reception and collation given by the resident members of New York to the members of the Association, their ladies and invited guests.

THIRD DAY, OCTOBER 6, 1892—MORNING SESSION.

DR. A. H. GOELET, VICE-PRESIDENT, IN THE CHAIR.

EXECUTIVE SESSION.

On motion of Dr. Hutchinson, authority was given the Secretary to hire an assistant, if this were deemed necessary.

Dr. Nunn moved that the executive committee be instructed to publish the proceedings of the Association from the initial meeting. Carried.

Dr. Hutchinson stated that the *New England Medical Monthly* would be pleased to publish the entire proceedings free, and would furnish 1,000 copies in cloth covers at 75 cents each.

On motion of Dr. Massey, a vote of thanks was given the resident members in New York for their reception. Votes of thanks were also given to the New York Academy of Medicine, the Electric Club, the electrical experts, and the Telephone Company, and the Secretary was instructed to send appropriate resolutions to those mentioned.

The business session was then adjourned until evening.

IN MEMORIAM—DR. GILMAN KIMBALL.

By Ephraim Cutter, M.D., LL.D., of New York. Read in his absence by John A. Cutter, M.D.

Prelude.—The remarkable life of this great surgeon deserves notice by this society, for what he did in relation to galvanism of uterine fibroids. Had he been like some distinguished surgeons, who have publicly condemned this procedure and thrown contumely on its operators, present history would not have existed. While he was at least the peer of the above gentlemen, he had largeness and comprehensiveness of view enough to see that there are more ways of doing things than one, and was willing to try other methods where surgery had failed so often that he said he was sick and tired of having laparotomy cases of uterine fibroids die.

Had the writer, ignorant, careless and blundering, (as he was thought) applied to the above gentlemen in place of Dr. Kimball, to go in with him in the application of galvanism to uterine fibroids, it is more than probable that some of the cases operated on since 1871 and cured would not now be alive.

The lesson of this unusually long professional life teaches that in condescending to men of low estate, and considering that no one specialty covers the whole ground—is courageous and bold—and that one should be inspired with an idea to *cure* disease and relieve sufferers, if not in one's own way, by some one else's.

In 1849 Dr. Kimball first made my acquaintance while I was a sophomore at Yale by performing an exploratory laparotomy for a uterine fibroid, as consultant with my father, the late Dr. Benjamin Cutter, of Woburn, Mass. The patient died. I thought then and think now that there was present a trio of brave people. Here was an operation which has only lately been divested of its terrors, done forty-three years ago. Dr. Kimball was certainly no coward. Dr. Benjamin Cutter who sustained him, had in 1846 removed a movable cartilage from the knee joint of a man thirty years old, without ether. Operation followed by

complete cure. Mary Clinton, a nurse, was a courageous patient to submit and calmly die! At this time Dr. Kimball was forty-four years old. He lived to nearly double that age, all the while save the last five years or so, doing ovariotomies in spite of calumnious opposition, bitter reproach and unsparing condemnation endured from those who had the reputation of being the foremost surgeons and physicians of their time! Of course he was not the originator, but in the face of such united and obstinate resistance he deserves to be named with McDowell, of Kentucky, and Dr. W. Atlee, of Philadelphia, who was a contemporary with Dr. Kimball and startled the medical world with his success in ovariotomy. He had more cases than Dr. K. who naturally took Dr. Atlee's place after his death.

About 1869 Dr. Kimball proposed to me a partnership of office, but it was not till 1871 that this was brought about. The writer had been applied to by Dr. W. S. Brown, of Stoneham, to try galvanism on a uterine fibroid in a patient of his. Elsewhere Dr. Brown has related the history.[1] The first operation was Aug. 21, 1871, at which Dr. Kimball was not present, at the next operation, Aug. 31, Dr. K. was present and applied the needles at my request.

As a man Dr. Kimball was of medium size, high forehead, piercing eyes, lean, lithe and wiry. His general attitude was one of professional thought. Sedate to most people, he was when you entered into his confidence, very talkative and communicative. He delighted to hear of new ideas of all kinds. He had a large fund of entertaining reminiscences, specially of medical men. He never alluded to the opposition he encountered, no matter how much he felt on subject. His manners were kind to his patients and he was remarkably expeditious in his diagnosis. His habits were not convivial. He did not use tobacco nor profane language. His character for business honesty was very high. He was wealthy, but all his wealth did not come through his profession. He had free use of capital not his own, whereby he took monetary advantage. The sides of his character that were turned towards me were mostly good ones. He was fond of music and performed on the cello sometimes in public. He was influentially connected with the large manufacturing corporations of Lowell, as stockholder and surgeon. He came of a long lived family. He had seven or eight sisters who idolized him, as he was their only brother.

He was very calm under domestic affliction. One day I noticed that he went home early.* Before he went he said "I must go as my wife died this morning." This was the first I knew of her illness. He was very kind to me when I was laid by for 100 days with a fractured patella; none could exceed him in tenderness and interested advice. He was a keen observer and his judgments of people at first sight were generally correct. When about five or six years ago he was laid up with an attack of hemiplegia and I visited him for sympathy, he was very profuse in his thanks and said he thoroughly appreciated it. He disliked the pen, rarely wrote letters even, but what he did write was good Saxon English. I used to try to get him to write out the history of his experience in ovariotomy, but he was averse to doing this himself. On the other hand his advice to me was, to publish, publish as long as I had anything to publish, and if I have done so, it is partly by the advice he gave.

He was fond of society, that is, medical. The last time I saw him was at the 1891 annual dinner of the Massachusetts Medical Society, when he was 86 years old. He was also an honored attendant on the Ninth International Medical Congress. I must confess I was much pleased to see him honored this way. It awakened feelings of wonder that a human being could work so long. He was four years older than Dr. H. I. Bowditch, but his mind was much clearer to the last. How few medical men have such longevity, and yet they were both workers.

As to electricity, from what I gathered in conversation with another old Massachusetts Medical Society Fellow who joined in 1837 and who had devoted his life to faradism with a success from his own description that far surpassed anything I know of, I found that Dr. Kimball had not put much faith in electro-therapeutics. The two worked in Lowell. It was the more strange then that he went into the work he did. I laid the matter fully before him not keeping back all the discouragements I had received from the best specialists I could consult. They were united in saying it was useless to try galvanism on uterine fibroids. I asked if they had tried and they said they had not, and thus a clear field for us to go ahead was open. Opinions about things they had not tried were not worth much. I told Dr. Kimball that I thought I would like to see if the galvanic current would not arrest the development. It was merely an experiment; but one I thought should be tried. There was much said in the same direction. I told him I had the apparatus, and he said he would take hold. After the above trial he made great complaint of the needles. As he was going to New York I asked him to get a proper set of needles for such work. He did so and after several months we tried them at Lowell. The battery was all right but the needles failed to penetrate through the walls of the fibroid, which was situated in the uterus. A sponge was placed on the pubis to complete the circuit. At this stage Dr. Kimball was much vexed and said he would not have anything to do with the operation unless I invented some needles that would penetrate a bullock's testicle. Of course if they could do this they would penetrate anything less solid. I set my wits to work as this was the situation: Dr. Kimball had probably seen more cases of uterine fibroids than any other surgeon in New England, as he had found three uterine fibroids to one ovarian tumor, he was constantly seeing them and this opportunity of his great aid and influence was to me too important to be lost. So I produced a gold plated cork screw electrode. We tried it and it did not work. Next I modified an ordinary surgeon's director into a needle and this has never failed in any emergency. It has been condemned by some but Dr. Kimball never condemned it, nor can I so long as it works. I am quite sure that had not this needle been produced no progress would have been made. We soon got tired of one needle in the vagina and a sponge over the pubes. Then it was resolved to put both needles through the abdominal walls into the substance of the fibroid, because this was attacking the diseased part solely, and where it was needed. When operating together I looked after the battery and the current, and he the needles. It was a bold procedure to plunge the needles through the peritoneum but it was done and no bad results followed for some time. When the needles were withdrawn pressure was made close to the needles, thus holding the tissues together. With these precautions and these common sense suggestions, Dr. Kimball and I found this mode of operating feasible.

The Natural History of this Procedure without Ether.—One day I said I wished we could have a patient try the operation without ether and then we could see if the galvanic current produced any systemic effects. He took up the idea at once and soon said he had a case. The operation was done without anæsthesia. I thought the patient a very brave woman. She began at once to show signs of intense suffering, though she said nothing nor groaned. Even when we said we would stop and give ether she refused

[1] Phila. Med. and Surgical Reporter, Feb. 8, 1873.

The following symptoms were noted among others: Pulse ran up to 130 and 140; respiration increased. Body and limbs writhing in agony. Hippocratic countenance, face pale, nose pinched, etc. She bore with it for five minutes when we agreed that it was evident enough that the galvanic current, which we could bear on our tongues, had a powerful systemic influence which carried out would kill. We had no milliampère metre but afterwards a like battery with both needles through the abdominal walls showed in an antercalated ampère meter 500 milliampères.

Dr. Kimball was a constant friend.—At this time he was advised that he had better associate with some one who knew more what he was about, but Dr. Kimball never went back on his associate save in the matter of priority. This was settled outside of us both, by Dr. W. S. Brown in his published report of the first unsuccessful case. Dr. Kimball's memory failed him, nor would I argue with him as a matter of respect to one who had done so nobly the difficult pioneer work that was accomplished through his influence and ability and steadfastness and true courage. The work is better for his life. He paved the way for his followers. Men may rise up and belittle the work done by him before they were born, but nobody can wipe out the fact of his accomplishments by pure pluck, determination, perseverance and moral courage. Dr. Kimball was not a perfect man. Where is one? He once said, when I told him about the 100 or more cases of uterine fibroids removed by ergotine injections by Dr. Byford, "I don't believe a word of it." This settled it for him, but belief or disbelief in no way alter facts. He would not believe I cured cases of uterine fibroids by food. Nor think as I do that they are diseases of nutrition caused by feeding, nor in my cures of consumption by feeding. I do not blame him, but I do praise him here for his honorable contribution to galvanism of uterine fibroids, and with him as an example, I call Mr. Tait and Dr. Joseph Price (since I understand these gentlemen have over their names come out as antagonists to electro-therapeutic procedures I have a right to use their names) to cultivate the beautifully broad spirit of our deceased father in surgery, and condescend to help others in other ways in place of hindering. If the whole profession could learn this lesson from Dr. Kimball it would be an imperishable monument better than bronze.

120 Broadway, New York.

Remarks.

Dr. Massey said that all present must have listened with pleasure to this memorial, which was the more pleasant as it showed that we are indebted to an American surgeon for the first operative treatment of fibroid tumors, as we are for so many gynecological procedures; but while calling attention to the historical position of both Dr. Gilman Kimball and Dr. Ephraim Cutter, he did not wish to be understood as desiring to detract at all from the credit due Apostoli for his development of these ideas. It would be interesting to all if more details were given concerning the battery which was used for this treatment.

Dr. J. A. Cutter replied that he had operated upon the case in which the needles were inserted into the tumor, and the current strength measured 500 milliampères, with a single battery cell of 1½ volt.

Dr. Massey said that it would be inappropriate to bring out this matter in connection with a memorial, but it was a subject of much interest to the Association. He would certainly take exception to the possibility of passing 500 milliampères through a material thickness of fibrous tissue from a battery of two volts, for it is an absolute physical impossibility, unless the needles were so close together that a complete solution of the tumor took place between them. In experiments on fibroid tumors, six hours after their removal, he had found that three-quarters of an inch of tumor of the average consistency developed a resistance of from 100 to 500 ohms.

Dr. Cutter said that he had described only what he had seen. There was probably a great difference between a tumor in the living body, and after removal. The tumor had probably been carried five or six years, but one week after the operation, although previously smooth and hard, it was found to be broken up into a number of segments.

SOME RECENT CONCLUSIONS IN THE TREATMENT OF FIBROID TUMORS.

By G. Betton Massey, M.D., Philadelphia.

A review of the question of the mode of action of electric energy in causing the regression of fibroid tumors is always valuable in pointing out the most efficient methods of using the agent, as well as helping us to define its limitations, explain its shortcomings, and comprehend the mode in which the various degrees of regression and absorption are brought about. During the past year I have had an excellent opportunity to study the effect of simple contractions of a myomatous growth produced by passing strong galvanic and faradic currents through it by means of large electrodes placed externally on the skin on opposite sides of the upper extension of the tumor. The patient was a single lady of thirty-three years, in whom the tumor had been known to be present for ten years. It was somewhat irregular in shape, of a soft, mushy consistence, and as large as a pregnant uterus at seven months, almost filling the abdomen. For over a year there had been a constant loss of blood. The excessively mushy consistence of the growth contra-indicated the ordinary Apostoli treatment in my opinion, and after declining to accept the case for that method, I decided to try the effect of str ng currents externally applied. The pads, about eight inches in diameter, were placed first on the tumor and back, and then on each side of the tumor at each treatment, as much as 150 to 200 milliampères being turned on and reversed several times with the controller. This was followed by similarly applied primary faradic currents. A good effect was soon shown in the control of the wasting, the monthly periods being reduced to nearly normal proportions. The effect upon the size is best shown by the following series of measurements of the abdominal circumference at the greatest diameter of the tumor, taken before and after each treatment:

Feb. 26.	Circum.	before	treatment,	35	inches;	after	treatment,	34⅜ inches
March 1.	"	"	"	34⅜	"	"	"	34¼ "
" 5.	"	"	"	34½	"	"	"	34¼ "
" 11.	"	"	"	34¼	"	"	"	34 "
" 14.	"	"	"	34	"	"	"	33⅞ "
" 23.	"	"	"	34	"	"	"	33⅝ "
" 30.	"	"	"	34	"	"	"	33½ "
April 8.	"	"	"	33½	"	"	"	33 "
" 25.	"	"	"	33½	"	"	"	33 "
May 11.	"	"	"	32⅝	"	"	"	32½ "
" 12.	"	"	"	32½	"	"	"	32½ "

It will be seen by this table that each treatment produced a shrinkage of from one-quarter to three-quarters of an inch, which was retained in part for a few days until the next application. At the end of two and a half months two and a half inches had been gained. The contraction and hardening of the tumor under the effect of the current was most marked, the mushy feeling giving way to a knotty condition. The happy patient was now sent home for a few weeks, but on her return we were disappointed to find that the growth had relaxed again and now measured thirty-four and one-half inches, but a half inch in circumference less than at first. Further treatment was abandoned by me as not productive of sufficient results.

The lesson taught by this case is clearly that lasting results in these soft myomas require more than an interpolar action, while it is also made clear that myomatous

tissues may be made to contract at once by these currents, doubtless in the same way that any other muscular tissue is contracted by electricity.

More valuable data may be gained from a study of the treatment used with the seven tumors that I have had the pleasure of seeing disappear completely by absorption under electricity. The first of these was an intramural growth filling the pelvis, and with a projection on the left reaching to the crest of the ilium. The consistence was firm, and there had been considerable suffering from pressure. The treatment was intra-uterine, negative applications of from fifty to 150 milliampères. After the cessation of treatment the uterus had shrunken to the normal size, leaving indurations of the ligaments only. In the second case the tumor was larger, extending considerably above the brim of the pelvis. The mode of treatment was the same, but the current strength did not exceed 110 ma., and the size of the uterus and condition of the pelvis were both normal six months after the cessation of the treatment. The third tumor that was completely absorbed was a pelvic interstitial growth of six years' standing, with hæmorrhages. The treatment was again intra-uterine but positive, and the highest strength was but sixty ma. The fourth and fifth were both pelvic, interstitial, hæmorrhagic growths, the largest, however, extending somewhat above the brim. Here again the treatment was by the intra-uterine method and positive, the highest current in one being sixty and in the other 100 ma. The sixth tumor to completely disappear is the only one that has so far been entirely absorbed after electro-puncture. It was a sessile, subperitoneal growth projecting into Douglas' pouch and extending upwards into the abdomen nearly to the umbilicus, and interfered much by pressure with the functions of the bladder. The punctures were negative and vaginal, buried over an inch in depth, and varied in strength from 100 to 150 ma. The seventh and most recent disappearance by absorption was in all respects the most remarkable, for the intramural tumor, fully the size of an adult head and extending above the navel, was made to disappear by intra-uterine applications under 125 ma. during a prolonged treatment. A portion of the treatment of this case was done by Dr. Whitcomb, of Greenwich, N. Y.

Of the seven cases of complete absorption, therefore, six were treated by the intra-uterine method and one by pelvic electro-puncture. Without considering the methods of treatment used in the large number of cases of symptomatic cure and reduction in my own practice and those of others, it would seem that the most effective mode of treatment necessitates the concentration of currents, not necessarily of great strength, in the immediate vicinity of the trophic and vascular supply of the tumor, rather than the mere passage of strong currents through them. It is apparently a case of cutting off or demoralizing the trophic paths or headquarters of the neoplasm within the uterine stroma itself or at its hilum, and when we can accomplish this best our work in these growths will be most quickly effective.

212 S. Fifteenth St., Philadelphia.

Discussion.

Dr. Kellogg said the faradic current is capable of markedly affecting uterine tissue, yet he had never seen it permanently arrest the growth of a neoplasm. In order to decidedly arrest such a growth, he had found it necessary to modify its nutrition by cutting off its trophic and vascular supplies, and this statement was founded on a personal experience with one hundred and fifty cases of fibroid tumors. The electrolytic current acts most effectively by destroying the blood vessels which feed the growth. On a large fibroid on one occasion, he had used a current of 350 milliampères, but it was followed by a severe phlebitis of both limbs, and even the patient's life was endangered. About one month later, he was surprised to find that the tumor was only half its former size, and at present, it has nearly disappeared, and the patient is in excellent health. This marked retrograde process he attributed to the plugging up of the blood vessels by the phlebitis, and the consequent interference with the nutrition of the growth. He had noticed since then that those patients who suffer some pain in the limbs after an application, and they not infrequently do, are the ones who make the most rapid progress. The probable reason why the removal of the uterine appendages sometimes check the growth of such tumors, is that the ligation of the vessels of the broad ligament cuts off the nutrition of the neoplasm.

Dr. Hutchinson said that about fifteen years ago, he began the treatment of fibroids of the uterus with a current of not more than three to five milliampères, distributed through six fine needles, driven through the abdominal walls into the tumor. There were daily seances of fifteen minutes each. The whole treatment was painless, but was very slow. Thus, an intramural fibroid the size of a fœtal head required seven months of treatment to reduce it to the size of an orange, and then, the patient discontinued treatment; but there had been no return of the trouble. Apostoli had refused to try this method on the ground that it was too slow. The speaker said that the first time he ever saw a fibroid tumor operated upon, the operation was performed by Dr. Kimball, assisted by Dr. Benjamin Cutter. The case was one in which he had refused to operate. Two needles, eight inches, and three-fourths of an inch in diameter, shaped like bayonet, were driven into the tumor. The patient died apparently of peritonitis, and the tumor did not seem to have been affected at all by the treatment. This case emphasized the wisdom of using fine needles and low pressure currents, with daily applications of about eight minutes. In one patient, fifty-two years old, whom he treated at the Rhode Island Hospital for seven months, the entire mass was absorbed, and the patient dying the following year of pneumonia, he was allowed to make a post-mortem examination. He found scars through the peritoneum, and several hundred needle marks on the uterus, but there were no evidences of peritonitis, or other complications having existed. She had passed the menopause since the last treatment. His method produced the same amount of absorption as that with the stronger currents, and it was painless and harmless. No antiseptic precautions were observed, but care was taken to sterilize the needles by passing them through a flame. The polarity was reversed each day. The indifferent pole was a pad, six or eight inches square placed on the back. Insulated needles were not necessary with such mild currents, and they were much more difficult to pass through the skin. His theory was that the current stimulated the lympatics to more rapid absorption.

Dr. Kellogg said that the most rapid recoveries are those who are near the menopause; electricity seems to hasten absorption. He said that he had punctured the left ventricle of the heart without doing harm. This showed the harmlessness of such punctures.

Dr. Herman remarked that the needles employed by Hutchinson were so fine that it was possible that they might pass between the fibres of the peritoneum, which is quite an open meash, and his results show the safety and convenience of the method.

Dr. Gunning had been much interested in the treatment, but had had no experience bearing upon it.

(*To be continued.*)

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:
PER ANNUM, IN ADVANCE $5.00
SINGLE COPIES . . . . . 10 CENTS.

Subscriptions may begin at any time and be sent to
THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 68 WABASH AVE., CHICAGO, ILLINOIS.

All members of the Association should send their Annual Dues to the Treasurer, RICHARD J. DUNGLISON, M.D., Lock Box 1274, Philadelphia, Pa.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, APRIL 8, 1893.

THE CHANGES IN NERVE CELLS DUE TO FUNCTIONAL ACTIVITY.

The Journal of Morphology, Vol. vii, No. 2, contains a valuable original study of the microscopic changes in nerve cells due to functional activity by C. F. HODGE, PH.D., based upon a number of ingenious experiments upon frogs and cats and upon observations on rested and fatigued birds, bees, or chased foxes, and on the spinal cord of a hydrophobia patient. The work appears to have been carefully and conscientiously done: the technique employed is quite faultless; many of the numerous measurements were corroborated by independent observers and, on the whole, there is no single serious criticism of this research to be made. Throughout the whole all observations have been directed solely towards determining the structural changes that occur in nerve cells after periods of activity. Experiments with electrical stimulation of the afferent nerves of spinal root ganglia were conducted on frogs, dogs and cats; the results were "controlled" by allowing the fellow ganglia on the opposite side to remain at rest; at the end of a certain length of time both the stimulated and quiet ganglia were excised, carried through the very same preparatory fixing and hardening procedures and finally they were microtomized and the sections from both were placed side by side in the same microscopic field. Careful study and measurements of all parts of the cells in the sets of specimens thus prepared, enabled the author to summarize his results in a series of interesting conclusions. By suitable variation in the length of time between the artificial stimulation and the killing of the animals and then preparing sets of specimens, as before it was possible to show that recovery from the changes induced by the stimulation occurred slowly—it required about eighteen to twenty-four hours for the ganglion cells in kittens to regain their appearance in rest after five hours electrical stimulation of their afferent nerves. To determine definitely whether the changes induced by artificial electrical stimulations were physiological or pathological, *i. e.*, whether similar changes occur in the normal activity of nerve cells or not, a number of observations were made on sparrows, swallows, honey bees and carrier pigeons after periods of rest and after periods of normal activity. The animals were instantly killed, the parts examined were removed on the spot and placed in suitable fixing agents; in all instances where it was possible, tissue from an animal in a condition of normal fatigue was compared with tissue from one supposed to have enjoyed a night's rest. It will be evident at once that swallows and the "busy bee" would be very suitable for such observations on account of their regular habits in regard to work and to rest. It was found that the changes observed in the nerve cells from animals in a condition of more or less physiological fatigue corresponded quite accurately with those described in the ganglion cells after experimental electrical stimulation.

Some of DR. HODGE's conclusions are: Metabolic changes in nerve cells are as easy to demonstrate with the microscope, as similar processes in gland cell; the principal changes thus far observed are: For spinal ganglion cells of frog, cat, dog, under electrical stimulation; for spinal ganglion and brain cells of English sparrow, pigeon, swallow, and for brain cells of honey bee under normal fatigue:—*a.* Nucleus; decrease in size; change from smooth and rounded to a jagged and irregular outline; loss of open reticulate appearance with darker stain. *b.* Cell protoplasm; slight shrinkage, vacuolation in spinal ganglia; considerable shrinkage with enlargement of pericellar lymph space for cells of cerebrum and cerebellum; lessened power to stain or to reduce osmic acid. *c.* Cell capsule, when present: decrease in size of nuclei. *d.* Five hours stimulation of nerve cells requires about twenty-four hours' rest in order that the process of recovery may be completed. The appearances noted in the spinal cord of a hydrophobia patient were similar to those found in the animals, but no conclusions could be reached from one specimen of this kind.

DR. HODGE's researches appear to have carried our knowledge a step farther into the working of the nerve cell and the results are certainly of very great interest not only to the morphologist and physiologist but also to the physician and pathologist. Reproductive tissue, glands and muscles have long been known to show marked structural changes connected with functional activity, but it was long thought that similar changes could not be demonstrated in nerve cells because they did not produce a material secretion or do mechanical work. It will

be recollected that DASZKIEWICZ, in 1889, attempted to show by experiments on frogs that activity in the central nervous system is accompanied by changes recognizable with the microscope, but his results were not accepted as conclusive; while DR. HODGE'S work certainly bears the stamp of reliability, and the beginning thus made in this field of nerve cell changes, whose study is so fascinating because of the association with the nerve cells of the higher activities of life, will undoubtedly lead to many valuable observations in various conditions of health and of disease.

ETIOLOGY OF THE VARIOUS DEFORMITIES OF HIP-JOINT DISEASE.

In the transactions of the American Orthopedic Association, vol. v., a new theory for the causation of the deformities of hip disease is advanced by DR. A. M. PHELPS, of New York. Heretofore it has been held that the deformities of flexion, abduction and adduction were caused either by the limit assuming the position of greatest comfort, or that flexion and adduction at the commencement of the disease were due to the joint capsule being distended with fluid, and later when the capsule ruptured, the limb passed into adduction and greater flexion because the adductors and flexors were stronger than the abductors and extensors. Neither theory has been satisfactory.

From abundant clinical data DR. PHELPS found: 1. That abduction always preceded flexion, or was attended by it, in the first stage; 2. That abduction and outward rotation are always present in the second stage, and flexion nearly always present, but absent in a few cases; and 3. That to have the limb flexed beyond forty degrees, and frequently at a much lesser degree (twenty degrees), it quite rapidly passed to the deformity of adduction, inward rotation and flexion, whether the capsule was distended with fluid or not.

Assuming the work of the gluteus maximus operating in a given triangle with two pounds and a half weight to be fifty pounds, other muscles operating in different triangles of different weights can be accurately estimated as to their comparative strength. Following this rule it was found that the glutei muscles were capable of one hundred and thirty-one pounds, whereas the adductors were only capable of one hundred and sixteen pounds, proving that the abductor group was much stronger than the adductor in the subject examined. From this it is argued.

First, that in the first stage, the limb is slightly abducted, rotated out, and flexed by voluntary effort on the part of the patient to relieve tenson of the capsule and Y-ligament. Second, that this deformity increases, constituting the second stage, because spasm of the muscles about the hip joint is present, and the great glutei, outward rotators, tensor vaginæ femoris, and flexors have the advantage of leverage.

Third, that, as a rule, limbs assumed the deformity of the third stage only after flexion to twenty-five degrees has taken place, because after the limb has passed to that number of degrees of flexion, the abductors to a very great extent become internal rotators; the external rotators almost totally lose their power as external rotators, and become abductors (with the exception of the quadratus femoris and obturator externus), and the tensor vaginæ femoris becomes a powerful inward rotator. Resistance or antagonism to the powerful abductors and flexors of the thigh being modified or annulled by flexion, the limb must pass to the deformity of the third stage, namely, adduction, flexion and inward rotation.

And fourth, some cases in the third stage continue the deformity of the second stage, because partial or complete dislocation of the head of the femur in an upward and forward direction.

THE DIAGNOSTIC VALUE OF CYLINDROIDS IN THE URINE.

Many standard text-books do not contain any statements whatsoever relative to the so-called cylindroids in the urine which every careful observer meets with very frequently in his routine urinary examinations. The recent article by MAUGES on cylindroids in the urine (*New York Medical Journal*, February 18, 1893) is consequently a timely contribution, presenting as it does in full all the important facts concerning this somewhat neglected element in the urinary sediment. Cylindroids were first described by THOMAS in 1870, and he gave them this name because they greatly resembled true casts together with which they frequently occurred. They are delicate, ribbon-like forms, with very faint outlines, quite refractile, of almost the same diameter as true cylinders; they are usually very long, present frequent bends and twists, as well as lateral indentations; they also occasionally have narrow, elongated, branching extremities. Sometimes they have been found in the interior of genuine, hyaline casts, and then again ordinary casts may terminate in long, characteristic cylindroids.

Considerable discussion has prevailed concerning the nature and the mode and place of formation of cylindroids; it appears to be quite definitely settled, however, that the true cylindroids originate in the kidney, while the so-called false forms may be derived from the genito-urinary tract below the kidney. That cylindroids may originate in the kidney is positively demonstrated by TÖRÖK and POLLAK, who found them in the uriniferous tubules in sections from the kidneys of the common forms of Bright's disease, and also after various experimental renal lesions. The occurrence of casts

enclosing or terminating in cylindroids would also point to their renal origin in such instances. True cylindroids dissolve on addition of acetic acid, while the extra-renal or false forms remain unchanged. False cylindroids are readily found in the secretions of the prostatic, Cowper's and Littre's glands, as well as in those from the mucous membrane of the bladder, vagina and uterus, and these fluids easily become mixed with the urine. The false cylindroids consist simply of bands of mucus precipitated in the excretory ducts of the various glands above referred to by the acid urine. Pseudo-cylindroids will be found in great abundance in the urine of patients with gonorrhœa, often after coitus, or after a hard passage of scybalous masses when the prostate has been compressed and its secretion forced out.

True, or renal cylindroids occur quite frequently; they are found in the various forms of nephritis, in renal congestion, in the acute infective diseases, in catarrhal jaundice, in persons with gouty manifestations whose urine is hyper-acid and deposits crystals of uric acid and oxalate of lime. JAKSCH and others have also found them in healthy individuals. With reference to the mode of formation of true or renal cylindroids, the view that they are formed by the coagulation of some form of albuminous transudate into the tubules is the most reasonable. They do not react like mucus with acetic acid, and the kidney does not secrete any mucus; hence the idea that they are precipitated renal mucus has to be entirely abandoned.

What practical significance is to be attached to cylindroids? Pseudo-cylindroids are of significance only in so far as they have to be differentiated from the true or renal forms; *per se*, pseudo-cylindroids have no importance. Some authors regard cylindroids as indicative of a so-called catarrhal nephritis, in the existence of which they still believe, in spite of the fact that the renal epithelium has not been shown to be able to secrete mucus, and in spite of the second fact that true renal cylindroids do not consist of mucus. Generally speaking, it may be gathered from the opinions of such men as LEUBE, TYSON, ROSENSTEIN, MAUGES, and others, opinions which are, in some instances, quite contradictory, that the undoubted presence of renal cylindroids in urine has about as much significance as the presence of hyaline casts.

On account of the difficulty of readily differentiating between true and false cylindroids, the diagnostic value of the true variety is, of course, considerably diminished, and to base a diagnosis of nephritis upon the presence of cylindroids alone is not warranted, and the final conclusion that cylindroids alone have no positive, diagnostic value appears quite fair—first, because they occur in such a variety of conditions, including good health; and secondly, because, after all, the practical differentiation between true and false cylindroids is quite difficult and laborious.

ADAMKIEWICZ ON THE NATURE AND TREATMENT OF CANCER.

A communication on the nature and treatment of carcinoma assumes especial importance at this time, because the profound attention of investigators everywhere is being devoted to this subject. With the growing conviction of the infectious and parasitic nature of cancer, and the many researches towards the discovery of the specific parasite, it is but natural that the question of treatment should have been thrust in the background. Further, with the heated and apparently endless controversies waging about the sporozoan cancer parasite, it is a relief to note a work in which the questions at issue are approached from another standpoint. Such a work is the recently issued monograph of PROFESSOR ADAMKIEWICZ (Untersuchung Ueber Den Krebs Und Das Princip Seiner Behandlung. Wien. und Leipzig, 1893, pp. xii, 134), which represents the results of several years' research. The cancer problems are studied from the experimental and clinical standpoints, and the author carries the work to the extent of suggesting a remedy for this dreadful malady.

At the outset, we are met with the statement that carcinoma is an infectious disease, closely allied to syphilis in its characteristics—in both diseases we have the primary seat of infection, and the secondary foci. A specific microbe has not been demonstrated with certainty in either of these affections, still we do not doubt the infectious nature of syphilis, and therefore, since carcinoma has so many points of similarity, we must also assign it to the class of infective diseases. The inadequacy of CONHEIM'S hypothesis to explain the origin of carcinoma is clearly set forth. In considering the parasite of cancer, ADAMKIEWICZ takes the position of VIRCHOW, BAUMGARTEN, HAUSER, KLEBS, RIBBERT, NOEGGERATH, and those authorities who do not recognize the protozoan parasites of WICKHAM, MALASSEZ, SJÖBRING, RUSSELL, STEINHAUS, PODWYSSOZKI and SAWTSCHEHKO; for he regards the "sporozoa" of these investigators as the products of degenerated or metamorphosed cytoplasm, and as altered nuclei. Similarly, his studies of bacteria in carcinoma were negative; that is, no specific microbe could be discovered in this neoplasm.

The interest and value of the work of ADAMKIEWICZ lies in his experimental studies of carcinoma implantations, and particularly in the implantations in the brain. The subjects of these experiments were rabbits, and they were inoculated with small pieces of fresh, living carcinoma tissue, introduced into the brain substance. From the aseptic nature of these

operations, and by culture tests, the absence of bacteria in the inoculation material was assured. In all cases in which true carcinomatous tissue was planted into the brain, the inoculated animal succumbed, usually dying within a few hours, never living more than two or three days. The phenomena preceding death were those of extreme irritation of the nervous centers—impeded respiration, incoördination, spasms, convulsions, and paralysis. In a series of control experiments it was ascertained that fresh normal animal tissues, sarcoma, adenoma, iron nails, glass pearls, and pieces of wood, produced no reaction in the brain. Caustic chemicals, as chromic acid, nitrate of silver, and caustic potash, produced death, the time varying from sixteen hours to nine days; the effect on the brain being a more or less extensive necrosis. Injections of pus from various sources were fatal after a number of days, the brain showing many purulent foci. In none of these cases, however, was the characteristic train of symptoms, and the rapidly fatal ending of cancer implantation obtained. This led the experimenter to conclude that the carcinoma tissue exerted its fatal effect by a toxic action on the nerve centers, and an investigation of the poison of cancer was then undertaken.

By rubbing fresh cancer tissue in a mortar with sterilized water, and filtering, an opalescent, slightly alkaline liquid was obtained, which exhibited the poisonous properties of the cancer tissue, when injected into the brains of rabbits. In the case of this cancer extract, the death of the poisoned animal was very rapidly produced. With both the cancer tissue and the aqueous extract, the brain was pale and showed no reaction when death was produced early; but when the fatal termination was more prolonged, a reaction of an inflammatory character was observed. Control injections of distilled water, weak salt solution, and well water, failed to produce death, though symptoms of a temporary cerebral irritation manifested themselves. Injections of a one-half per cent. solution of carbolic acid produced epileptic symptoms, the animal living; but a one per cent. solution of carbolic acid produced clonic convulsions, stupor, paralysis of the extremities, and death in a few hours. Cerebral injections of a considerable quantity of KOCH'S lymph induced transitory irritation symptoms, but were not fatal. Injections of cancer extract into the jugular vein produced rapid death, with the usual brain symptoms. From these experiments, ADAMKIEWICZ is convinced that a toxic substance exists in fresh cancer tissue, and this substance he names "cancroin."

In studying further the effects of implantation of carcinomatous tissue, a very important observation is made by this investigator. After the death of the inoculated animal, the brain, together with the implanted graft of cancerous tissue, was cut into serial sections, stained with safranin and methylen blue after the method of ADAMKIEWICZ, and examined microscopically. The sections exhibited a varying number of violet colored foci, distinctly marked off from the reddish nerve substance, and these foci lay in part in the cancer graft, and in part in the surrounding brain substance—often at some distance from the implanted tissue. From his examinations, ADAMKIEWICZ was led to believe that these foci were composed of *young cancer cells and cancer germs*, which had infiltrated the tissues. The interstitial substance of the implanted graft appeared somewhat swollen, and the alveoli were occupied by the shrunken remains of the original carcinoma cells; and in many points in the interstitial substance, the "cancer germs" could be demonstrated, as if in the act of emigrating from their mother cells. The brain substance about these infiltrations appeared injured, and the author attributed this to the destructive action of the escaped germs. This wandering of embryonic carcinoma cells and carcinoma germs was particularly remarkable because of the rapidity of the process, the widely distributed metastatic foci all having developed in the interval between the implantation of the graft, and the death of the animal—an interval varying from a few hours, to two or three days. To establish the relations of this curious phenomenon to that which follows the ingrafting of normal epithelial structures, ADAMKIEWICZ implanted pieces of fresh kidney into the brains of rabbits. No change in the epithelial cells could be observed; they were distinct and gave well defined staining reactions for some time; and there was no migration of the elements of these cells; and no metastatic foci. The kidney substance was eventually surrounded by leucocytes, and finally absorbed. The germs of the cancer grafts, then, possess the power of independent mobility, and exert an irritant effect on the brain tissue with which they come in contact—more than this, the brain substance removed from the metastatic infiltrations, becomes poisonous, so that, when inoculated into other rabbits, a piece of this brain tissue produces death, as did the original piece of carcinomatous tissue. In other words, the young carcinoma cells and the carcinoma germs possess the properties of *independent organisms*, resembling, in their mode of action, certain well known microbes. Now these active young cells, and germs, escape from the mother cells of the implanted piece of carcinoma tissue; and therefore, the mother cells must have the inherent tendencies of their offspring. Thus we are prepared for the stand taken by the author, when he asserts that *the parasite of cancer is the cancer cell itself*; and once more we are reminded of the views so long held by pathologists, that carcinoma metastases were produced by the transportation of the carcinoma cells, which was, after all, only another

manner of expressing the conviction that the cancer cell was the infective element.

The cancer cell is an independent living organism, says ADAMKIEWICZ, and because of its destructive action on the tissues of the living body, he calls it a "sarkolyte;" and since it resembles, in its formation and properties, the protozoan organisms belonging to the sporozoa, it is styled the "coccidium sarkolytus."

If we accept the hypothesis which makes the cancer cell the parasite of the disease, it allows an easy explanation of such phenomena as the origin of metastases, and the growth of transplanted carcinoma tissue. It would not be necessary for the transported carcinoma cell to carry with it the infecting microbe or coccidium; for the cell, being an independent organism, could originate a metastasis at its lodging place, by a reproduction of its kind. It could thus transpire, that a carcinomatous nodule could grow in an epithelial organ like the liver, entirely independent of the cells of its host, and it would then be easy to understand why the cells of such an affected organ never take part in the new growth, but atrophy and perish at the advancing border of the neoplasm. The "formative irritation" theory of BILLROTH, the "asymmetrical mitosis" theory of HANSEMANN, the theories of ZIEGLER, KLEBS, and of PFEIFFER, would be superfluous if the sarkolyte of ADAMKIEWICZ was the carcinoma organism. The observations of NOEGGERATH on the sexual chromatin substances of the nucleus of the carcinoma cells, are interpreted by ADAMKIEWICZ as supporting his theory, since he conceives it probable that there must be a varying relation in the sexual nuclear substances of the lowly organisms, of which his "coccidium sarkolytus" is a type. "Now, if the cancer cell is the parasite of cancer, and cancer produces a toxic substance, then the cancer cell must be the place of formation of 'cancroin,' and 'cancroin' must be the metabolic product of the cancer cell." This proposition is especially demonstrated by the rapid degeneration of the infiltrated brain substance, and the induction of poisonous properties in the brain substance itself, as is seen in cases of cerebral carcinoma implantations.

The labors of PASTEUR and of KOCH have demonstrated the principle, that the rational remedy against an infecting organism is its own metabolic product. Accepting this axiom, ADAMKIEWICZ proceeded to a study of the therapeutics of carcinoma. In order to carry out this plan of treatment, it was necessary to ascertain the nature of the cancer poison. ADAMKIEWICZ concluded that cancroin belongs to the group of toxines; but, on account of the difficulty of obtaining a sufficient quantity of the substance, it was impossible to make an accurate chemical analysis, and he was, therefore, obliged to resort to a comparative physiological study of other toxic extracts, in order to assign cancroin to its chemical position. Furthermore, the difficulty in obtaining a reliable and constant carcinoma extract for therapeutic purposes, made it highly desirable to find a more available substance of similar physiological action. By a careful series of experiments, this investigator found that cadaveric tissue, and the extract from undecomposed cadaveric tissue, possessed poisonous properties, and produced symptoms preceding death, which simulated in every way those induced by cancroin, and implanted cancer tissue. But "cholin," the alkaloid of cadaveric tissue, possessed no therapeutic properties. This led to the trial of the nearly allied vinyl base, "neurin," an ingredient of LIEBREICH's protagon as obtained from the brain; and in its physiological properties, neurin was found to resemble the cancroin of ADAMKIEWICZ. Further experiments led to the adoption of neurin as the alkaloid for therapeutic purposes, and a trial of neurin in a case of epithelioma of the lip, apparently demonstrated its specific reaction against carcinomatous tissue—a reaction which very much resembled that of "tuberculin" on the lesions of tuberculosis. As the outcome of his investigations, and with the purpose of counteracting the irritant and possibly septic effects of the crude neurin, ADAMKIEWICZ neutralized the vinyl base (neurin) with citric acid, and saturated a 25 per cent. solution of this vinyl-citrate with carbolic acid. The phenol-vinyl-citrate, thus produced, was called "cancroin;" the original solution was prepared in three dilutions for clinical purposes, and its manufacture placed into the hands of one of the German chemical houses.

The monograph of ADAMKIEWICZ is concluded by a clinical history of the twenty-five cases of carcinoma and cancroid, which were subjected to the treatment by hypodermic cancroin injections. An interval of about two and one-half years has elapsed since the clinical studies were begun. From these reports, it appears that cancroin produces a rapid reaction in the carcinomatous tissue, often of an inflammatory and painful character. In the favorable cases, the primary reaction is followed by a necrosis of the elements of the cancer tissue, and, in some cases, this softening and disorganization of the tumor tissue was followed by a discharge of the necrotic carcinoma elements, together with a purulent fluid due to the reaction of the normal tissue elements against the dead carcinoma tissue. In the most favorable cases, the death and discharge of the tumor elements was followed by a reparative regeneration of the surrounding tissues. The cancroin injections appeared to exercise a marked tonic effect in several cases, the injections being followed by a diminished cachexia, improved nutrition, and in-

crease of body weight. On the whole, however, the results of cancroin injections, while apparently indicating a specific effect of the remedy on carcinomatous tissue, are not of a character to indicate a remarkable curative effect, as is even admitted by the author of the treatment. But it is too early to judge —certainly too early to condemn. We must hope, with ADAMKIEWICZ, that, in his new treatment, the *principle* is correct, and that, in due time, the treatment may be so modified as to realize the sanguine hopes of its discoverer.

An extended critical summary of this work of ADAMKIEWICZ is here impossible, for there are many statements of so startling and novel a nature, that they cannot pass the sober judgment of careful investigation without a painstaking analysis. In fact, even on casual study, the work seems burdened by numerous hypotheses which rest on insecure foundations. The "coccidium sarkolytus" will be subjected to the same searching scrutiny, as has been applied to the carcinoma coccidia of WICKHAM, SJÖBRING, PODWYSSOZKI and SAWTSCHENKO, etc., and, in this critical study, we fear the parasitic cancer cell will share the fate of other hastily proclaimed carcinoma organisms. Even were we to admit this bold conjecture of ADAMKIEWICZ, and recognize as a living parasite each one of the myriads of various carcinoma cells which present themselves to our view, how much nearer would we be to the question of the *origin* of this disease? From whence does the coccidum sarkolytus come? We would still be "breaking our heads" over the problems which have confronted ZIEGLER, KLEBS, HANSEMANN, NOEGGERATH, and others; and we would still find it necessary to call into requisition one of these very theories, which ADAMKIEWICZ apparently disdains, in order to explain the origin and development of the sarkolyte. From a clinical standpoint, also, it is not probable that the cancroin of ADAMKIEWICZ will receive the entire approbation of the profession; for, with the tragic disappointments of "tuberculin" before his eyes, the cautious physician will be slow to accept this new remedy. At the same time that it is full of rash hypotheses, the work of ADAMKIEWICZ is of great importance, for it serves to direct the carcinoma investigations into a new, and apparently very promising field. The *experimental* studies, as inaugurated by this research, must be followed; and it must be evident that many new facts await the conjoined labors of careful pathologists, along this line. Moreover, the recent remarkable investigations on animal extracts as remedial agents, as witnessed in the thyroid extract treatment of myxœdema, must indicate the promise which awaits the studies on cancer, in the direction laid down by ADAMKIEWICZ.

ASSOCIATION NEWS.

SECTION OF NEUROLOGY AND MEDICAL JURISPRUDENCE.

Preliminary program of the annual meeting to be held at Milwaukee, Wisconsin, June 6, 7, 8, and 9, 1893.

OFFICERS OF THE SECTION.

Charles K. Mills, M.D., 1909 Chestnut St., Philadelphia, Pa., Chairman; James G. Kiernan, M.D., 834 Opera House Block, Chicago, Illinois, Secretary.

Executive Committee.—O. Everts, M.D., Cincinnati, Ohio; H. N. Moyer, M.D., Chicago, Illinois; Justin E. Emerson, M.D., Detroit, Michigan.

The American Medical Association will meet at Milwaukee, Wisconsin, June 6, 7, 8, and 9, 1893. A preliminary program of the Section of Neurology and Medical Jurisprudence has been prepared and is appended, and it will be seen that the meeting promises to be one of great interest. The first session will be held on the afternoon of June 6. Two sessions will be held June 7 and 8, one in the morning and one in the afternoon. The last session will be held on the morning of June 9. Papers will be accepted for the final program until May 1, but not later, as all titles must be sent to the Chairman or Secretary by this date in order to allow sufficient time for the preparation of the programs for the meeting of the entire Association. If you have not yet indicated your intention to take part, you are earnestly requested to contribute a paper, to present cases, or to exhibit gross or microscopical specimens. It is desired by many of the members of the Section to have a dinner on one of the evenings of the meeting, the subscription to which will be three dollars. If you favor this proposition, please notify the Chairman or Secretary of your willingness to subscribe.

PROGRAM.

1. Anorexia Nervosa, by Dr. William Osler, Baltimore, Md.
2. Evidences of Paranoia Gleaned from the United States Patent Office, by Dr. Irving C. Rosse, Washington, D. C.
3. Acromegaly, by Dr. Harold N. Moyer, Chicago, Ill.
4. On the Weight of the Brain, by Dr. Henry H. Donaldson, Chicago, Ill.
5. Paretic Dementia in Women, by Harriet C. B. Alexander, Chicago, Ill.
6. Suggestions on the Treatment of Sclerosis of the Spinal Cord, by Dr. Daniel R. Brower, Chicago, Ill.
7. I—Occupation Neuroses Affecting the Muscles of the Neck. II—Syringomyelia, by Dr. Archibald Church, Chicago, Ill.
8. Malpractice in Insane Hospitals, by James G. Kiernan, Chicago, Ill.
9. I—Hemiparaplegia; Report of a Case Completely Recovered after One Year's Duration. II.—Aural Vertigo. (Meniere's Disease.) By Dr. L. Harrison Mettler, Chicago, Illinois.
10. Race Degeneracy and the Jaws, by Dr. E. S. Talbot, Chicago, Ill.
11. Remarks on the Therapeutical Use of Static Electricity, by Dr. G. F. Lydston, Chicago, Ill.
12. Thoughts on the Causation of Insanity, by Dr. T. H. McBride, Milwaukee, Wis.
13. Recent Discoveries and Observations Bearing on the Subject of Poisoning from Exposure to Arsenical Wall Papers, by Dr. James J. Putnam, Boston, Mass.

14. American Inebriate Asylums, by Dr. Thomas D. Crothers, Hartford, Conn.
15. Transverse Myelitis, by Dr. E. D. Fisher, New York, N. Y.
16. What Should Constitute Legal Responsibility, in the Medical Sense, in Insanity, by Dr. Landon Carter Gray, New York, N. Y.
17. On the Proper Method of Determining Whether an Alleged Lunatic shall be Declared Legally Insane or not, by Dr. Graeme M. Hammond, New York, N. Y.
18. Care of Epileptics, by Dr. Frederick Peterson, New York, N. Y.
19. Syphilis of the Cord Simulating Tabes, by Dr. Bernard Sachs, New York, N. Y.
20. Some Medico-Legal Experiences in Railway Cases, by Dr. Thomas G. Morton, Philadelphia, Pa.
21. Some Points in the Weir Mitchell Rest Treatment, by Dr. Wharton Sinkler, Philadelphia, Pa.
22. A Study of the Gliomatous Process in the Spinal Cord, illustrated by Microscopical Sections, by Dr. James Hendrie Lloyd, Philadelphia, Pa.
23. The Symptomatology of Cerebellar Tumor, by Dr. Francis X. Dercum, Philadelphia, Pa.
24. A Study of the Ocular Symptoms in Friedreich's Disease, by Dr. Charles A. Oliver, Philadelphia, Pa.
25. Has the So-Called Suspension Treatment of Diseases of the Spinal Cord Proved an Addition to our Therapeutics? by Dr. Hobart A. Hare, Philadelphia, Pa.
26. I—Notes on the Treatment of Exophthalmic Goitre. II—Insanity in Childhood, by Dr. J. Madison Taylor, Philadelphia, Pa.
27. A Contribution to the Study of Friedreich's Ataxia, by Dr. Charles W. Burr, Philadelphia, Pa.
28. The Diagnosis of Lead Convulsions, by Dr. D. D. Stewart, Philadelphia, Pa.
29. A Consideration of the Different Trigeminal Operations for the Relief of Pain, by Dr. John B. Deaver, Philadelphia, Pa.
30. Experiences of a Chemist with Delusional Insanity, by Dr. Henry Leffman, Philadelphia, Pa.
31. Hemianopsia and Certain Symptom-Groups in Sub-Cortical Lesions, by Dr. Charles K. Mills and Dr. G. E. de Schweinitz, Philadelphia, Pa.
32. Paranoia in some of its Medico-Legal Aspects, by Dr. Charles K. Mills, Philadelphia, Pa.
33. Early Recognition and Rational Treatment of Moral Imbecility, by Dr. Isaac N. Kerlin, Elwyn, Pa.
34. A Case of Sub-Cortical Cyst of the Lower Part of the Ascending Parietal Convolution; Operation—Recovery, by Dr. Theodore Diller, Pittsburgh, Pa.
35. Insanity of the Aged, by Dr. Frank T. Norbury, Jacksonville, Ill.
36. Gynecology in the Insane, by Dr. Annette McFarland, Jacksonville, Ill.
37. Dyspepsia as a Nervous Disease; or, Indigestion in its Nervous Aspects and Relations, by Dr. C. H. Hughes, St. Louis, Mo.
38. Case of Syphilis of the Pia, Simulating Tumor of the Brain; Mono-spasm and Mono-Paresis; Operation; Death on the Third Day, by Dr. J. T. Eskridge, Denver, Col.
39. The Inadequacy of the Morbid Anatomical Changes Found Post Mortem to explain the Manifestations of Insanity, by Dr. H. A. Tomlinson, St. Peter, Minn.
40. Degrees of Responsibility as Found in the Insane, by Dr. R. M. Phelps, Rochester, Minn.
41. Surgery in the Insane, by Dr. C. B. Burr, Pontiac, Mich.
42. The Special Influence of Alcohol on the Body, by Dr. T. L. Wright, Bellefontaine, Ohio.

SECTION OF PHYSIOLOGY AND DIETETICS.

The Secretary suggests that the Section consider:

1. The Paddock Pure Food and Drug bill now before Congress, as it was said that the Association had not knowledge enough to vote on it.

2. A Symposium on Infant's and Invalid's Foods by members who have had personal experience, pro or con.

3. Oral or written reports of food ethics as they now exist in the Association.

BOOK REVIEWS.

TRANSACTIONS OF THE AMERICAN ORTHOPÆDIC ASSOCIATION. Sixth Session; Volume V; 1893. Dornan, 100 North Seventh Street, Philadelphia.

This volume presents the same attractive features we have come to expect in this series. It has 282 pages and eighty-nine illustrations, and contains very much of the American orthopædic literature for the year. Club-foot, especially as to its treatment, receives the most extended consideration, and the diverse views may be summed up as follows: The treatment of congenital club-foot should be commenced immediately after birth, and should consist of frequent stretching by hand and retention by some simple brace or plastic dressing. Many cases can be fully corrected by the time the child comes to walk; then a retention walking brace should be used for from one to two years. Such cases as are not corrected by the time they begin to walk would be subjected to an operation by some, and treated by a stretching brace by others. Cases that have reached the age of one to three years without treatment may be treated by a stretching brace, or be forcibly corrected at a few sittings by a wrench or machine, being held meantime by a simple retention brace or plastic dressing; or they may be subjected to operation at once. Older cases, inveterate and relapsed cases should be subjected to operation. The operation should consist of a division of all shortened soft parts, such as tendons and ligaments, either subcutaneously or openly, and an immediate over-correction of the deformity by hand, wrench or machine. In most cases this will be sufficient, but in a few linear osteotomy of the neck of the astragalus and cuneiform osteotomy of the os calcis may be demanded, as may excision of the astragalus or even amputation. All cases, no matter how corrected, must be retained, until by use, the articular surfaces have adapted themselves to their new relations, and the soft parts on the side of the convexity have taken up the slack.

DISEASE IN CHILDREN. A MANUAL FOR STUDENTS AND PRACTITIONERS. By JAMES CARMICHAEL, M.D., F.R.C.P. Ed. Physician Royal Hospital for sick children; University Lecturer on Disease in Children, Edinburgh. Illustrated with 31 charts. New York. D. Appleton & Co. 1892; pp. 590. Price $3.00

An abridged work on diseases in childhood would be a properly descriptive title for this book. The essentials principally are given; the minutiæ are left to the larger books. It is an excellent treatise for the use of students in preparing for lectures or examination on the subject. The work of condensation has been judiciously done.

While commending the book in a general way we cannot conscientiously refrain from noticing some of its peculiarities. In the chapter on diphtheria no mention is made of sulpho-calcine as a solvent of the membrane, nor of peroxide of hydrogen which is advocated confidently by the latest works on therapeutics and by numerous writers in the journals. It looks odd to see the nominative and accusative cases substituted for the genitive in prescription writing, as occurs five times in three prescriptions on page 110, in treating of pertussis. The accusative of aqua is used in nearly every instance. There is an exception on page 559 in a formula copied from Hebra.

On page 48 occurs this sentence: "A mixture of nitric glycerine and infusion of calumba often forms a useful combination" in tuberculosis of children. Is there not danger in this combination of nitric acid and glycerine that nitroglycerine will be formed? Glycerine is a great favorite with the author; a large proportion of his prescriptions contain it.

In treating of nasal catarrh he advises the douche, although it is a dangerous procedure generally discarded by careful physicians. The fluids used are very likely to find their way through the Eustachian tube into the middle ear, as the child swallows, adding a Scylla to a Charybdis. In acute coryza no reference is made to the fact that the disease can be aborted—practically prevented—by minute doses of morphia with atropia, often by a single dose. Nothing is said of treating catarrh of the nose and throat by means of the very efficacious sprays of the popular preparations of purified liquid vaseline and eucalyptol, menthol, oil of pine, cubebs, camphor-menthol, etc. He adheres to the less effective, antiquated watery solutions.

In croup he uses zinc, ipecacuanha and copper as emetics instead of turpeth mineral which is more prompt and less depressing than most of the emetics. For hypertrophied tonsils he uses alkaline and astringent applications, while American surgeons are generally agreed that they do not reduce the size of the glands. The treatment is good for the doctor, but bad for the patient. As a rule, drugs are spoken of in a general way. The proper doses are not usually indicated, nor the frequency with which they should be repeated in order to produce definite results, both of which are important points in prescribing for children. Lists of remedies are mentioned and the practitioner is left to select according to his fancy, and to look up the proper dosage and methods of applying, in some other book. This incompleteness often leaves a rather unsatisfactory and doubtful state of mind after reading the author's remarks on treatment. Too much is left to be guessed at, or to be supplemented by works on therapeutics.

A useful appendix gives directions for the preparation of foods, such as beef tea, barley and rice water, etc., for poultices and baths, and for calculating doses of various medicines for different ages.

Various Forms of Hysterical or Functional Paralysis. By H. Charlton Bastian, M.D., F.R.S. Philadelphia: J. B. Lippincott Company. 1893.

The nucleus of this little work appeared last year in the form of four lectures in the *Lancet*. Since then the discussion has been extended and a number of new cases added.

In the introductory remarks the writer states some of the difficulties of the subject, and points out how at the best a diagnosis of "functional" or "hysterical" paralysis is but a makeshift and may be positive error. He in common with most neurologists regards a diagnosis of this kind as only to be stated after all methods of interrogating the nervous system have been exhausted. It is only possible by excluding all the known organic derangements which could possibly give rise to the condition. In this connection he calls attention to the hysterical concomitants of organic disease, which has been so admirably worked out by Buzzard. He inclines to the view that functional paralysis may be either cerebral or spinal, but admits that at present there are no real grounds for making any such distinction. No reason can be assigned why functional failure should not take place in any part of the nervous system, though as a matter of fact it is more prone to occur in some parts than in others.

While he advances no theory regarding the pathogenesis of these lesions, he ventures the suggestion that disturbance in the vaso-motor nerves may account for some of the cases, especially since the researches of Bradford show that the brain has a vaso-motor nerve supply, though less efficient than those found in other portions of the body.

Functional paralysis of a cerebral type is opened by a description of a case that he regards as due to defective functional activity of the Rolandic convolutions. He calls the motor region the kinæsthetic area. In this of late he has been followed by Horsley. Essentially the so-called motor region is believed to be sensitive to muscular movements, or the seat of "muscular sense." This view was advanced as early as 1880 in a work on "The Brain as an Organ of the Mind." We are surprised that there is no reference to the same view as advanced by Meynert, who had arrived at precisely the same conclusions in arguing that the brain was a mere reflex organ and the sum of its activities was embraced in its sensory impressions. As space could make no impression on the senses, it was necessary to assume that the motor cortex was a percipient apparatus for muscular movements. It is gratifying to have the same ideas brought out by such widely divergent schools as those of Edinboro and Vienna.

He next considers impairment of the function of the posterior third of the hinder portion of the internal capsule, the chief symptom of which is a loss of sensation on the opposite side of the body, including the muscle sense.

Hemianæsthesia with paralysis only when the eyes are closed, and those in which paralysis exists without reference to vision, form one of the most interesting chapters in the book.

Twenty-five pages are taken up with a discussion of functional paralysis of spinal origin. These cases are classified into *a*, those of a spastic; and *b*, those of flaccid type.

The author admits the enormous difficulties surrounding the inquiry, but is deserving of great credit for his able attempt to let a little light into this Central Africa of neural pathology.

The work closes with appendices on "The muscular sense; its nature and cortical localization," "On the neural processes underlying attention and volition," and "Is there a double representation of touch and common sensibility in each cerebral hemisphere?"

MISCELLANY.

American Climatological Association.—The tenth annual meeting of the Association will be held in Philadelphia, Thursday, Friday and Saturday, May 25, 26 and 27. Members having papers to present will please communicate with the President, Dr. R. G. Curtin, 22 S. Eighteenth St., Philadelphia, or the Secretary, Dr. J. B. Walker, 1617 Green St., Philadelphia, at as early a day as possible.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from March 18, 1893, to March 31, 1893.

First Lieut. George D. De Shon, Asst. Surgeon U. S. A. (Ft. D. A. Russell, Wyo.), is granted leave of absence for sixteen days, to take effect on or about April 1, 1893.

Capt. William G. Spencer, Asst. Surgeon U. S. A., is granted leave of absence for two months on surgeon's certificate of disability, with permission to leave the Dept. of the Platte.

Lieut.-Col. Charles C. Byrne, Deputy Surgeon-General U. S. A. Medical Director, Hdqrs. Dept. Columbia, is granted leave of absence for one month, with permission to apply for an extension of one month.

Official List of Changes in the Medical Corps of the U. S. Navy, for the Week Ending March 25, 1893.

Surgeon J. M. Flint, detached from U. S. S. "Miantonomoh" and granted one month's leave of absence.

Surgeon Dwight Dickinson, ordered to the U. S. S. "Miantonomoh."

Surgeon J. R. Waggener, ordered to the Norfolk Navy Yard.

Surgeon M. C. Drennan, detached from Navy Yard, Norfolk, and to the U. S. R. S. "Vermont."

Surgeon H. J. Babin, detached from U. S. R. S. "Vermont" and wait orders.

P. A. Surgeon C. W. Rush, sick leave of absence extended three months.